State-Level Economic Impacts of Removing the Ethanol Import Tariff[1]

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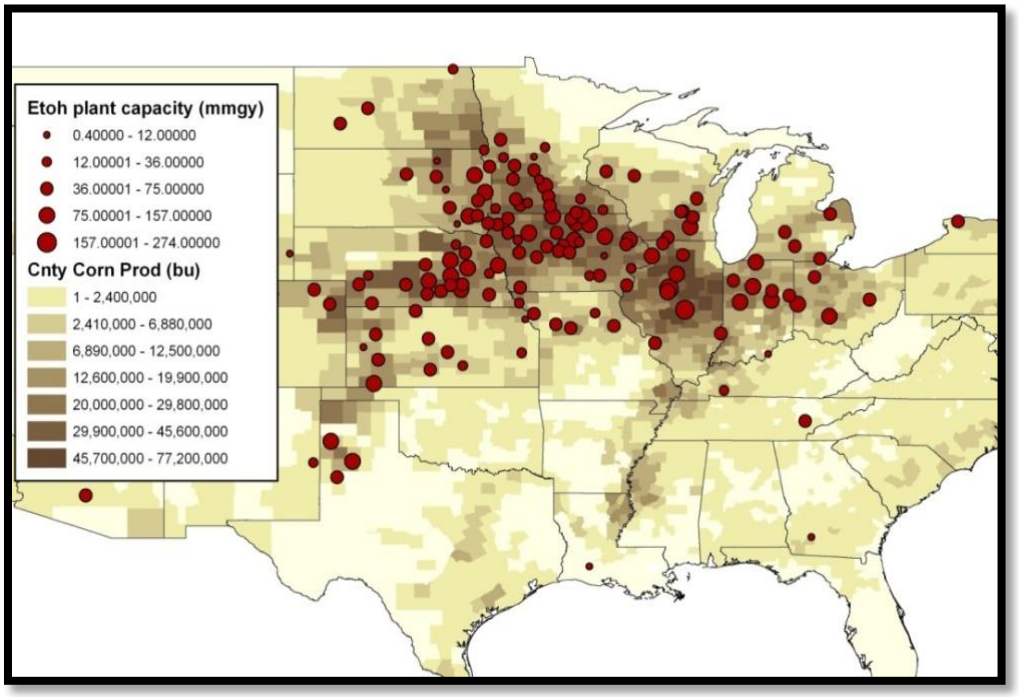


2008 Midwest Ethanol Capacity and Corn Production
Source: Renewable Fuels Association and U.S. Department of Agriculture
Exerted from Kaufman, Artz and Thompson (2008)

U.S. ethanol production has benefited from several protective government policies—such as an ethanol tax credit and an import tariff on ethanol for fuel. Since 1999 the number of operating ethanol plants has tripled and their production capacity has experienced a five-fold increase (Table 1). There are 26 states that have one or more currently operating ethanol plants and two addition states with ethanol plants under construction (RFA, 2008). In addition, there are 24 ethanol plants either under construction or undergoing major expansion. However, recent events have cast doubt concerning the future of these policies. For example, as part of the 2008 Farm Bill the ethanol tax credit has been lowered from 51 to 45 cents per gallon. Even though the 2008 Farm Bill includes a continuation of the import tariff on ethanol for fuel the provision expires in 2010. The continuation of the import tariff is in

[1] The author would like to thank Professor Thomas G. Johnson, Director (University of Missouri, Community Policy Analysis Center-CPAC) for his advice concerning the economic impact analysis implemented herein. Thanks are also given to Shriniwas Gautam and Bhawani Mishra (CPAC researchers and Agricultural Economics graduate students at the University of Missouri) provided valuable help in compiling the state economic impact models used in this analysis.

question starting in 2011. Without the import tariff, the question is not whether ethanol imports will occur but how large a volume of imports will occur.

This report summarizes a state-level economic impact analysis of removing the ethanol import tariff. The impacts analyzed herein not only include those caused by changes in the import tariff on ethanol production and on its most important input (i.e., corn) but also include the impacts on related crop commodities (i.e., soybeans, wheat, barley, and sorghum). Impacts are computed for every state that eight contains one or more existing ethanol fuel plants but also for those states that have ethanol plants under construction.

Table 1

Ethanol Industry Overview											
	Jan-99	Jan-00	Jan-01	Jan-02	Jan-03	Jan-04	Jan-05	Jan-06	Jan-07	Jan-08	Jan-09
Total Ethanol Plants	50	54	56	61	68	72	81	95	110	139	170*
Ethanol Production Capacity (MGY)	1,702	1,749	1,922	2,347	2,707	3,101	3,644	4,336	5,493	7,888	10,569**
Plants Under Construction or Expanding	5	6	5	13	11	15	16	31	76	61	24
Capacity Under Construction/Expanding (MGY)	77	92	65	391	483	598	754	1,778	5,636	5,536	2,066
States with Ethanol Plants	17	17	18	19	20	19	18	20	21	21	26
Source: Renewable Fuels Association											
* operating plants											
** 12,475 mgy capacity including idled capacity											

1. National Baseline and Alternative Assumptions Related to the Removal of the Ethanol Import Tariff[2]

IHS Global Insight, estimated the national impacts of removing the tariff on ethanol imports and its effects on U.S. ethanol domestic consumption, on changes in U.S. ethanol produced from U.S. corn, and on U.S. corn prices.

Corn and soybean yields are expected to increase over the next five years by 7.5% and 10%, respectively, greater than would be expected based on a linear historical trend. Gasoline will remain the predominant form of transportation fuel even though renewable fuel mandates increase. The West Texas Intermediate price of crude oil is expected to rise to about $70 per barrel during the 2010/2011 crop marketing year and then average in the range of $80 to $90 per barrel in the 2011/2012 to 2020/2021 period.

The regulatory cap on the amount of ethanol blended with gasoline is assumed to expand to 15% beginning with the 2009/2010 crop marketing year, then to 20% in 2015/2016 and 30% in 2019/2020. The national baseline forecast assumes that mandates for production and use of advanced biofuels are satisfied with domestic production, and that imported sugar-based ethanol is not counted in the

[2] This review of the national baseline and alternative forecast assumptions relies heavily on John Kruse's (2009) IHS Global Insight analysis of the national effects of the removal of ethanol import tariff.

mandate. Imported ethanol is assumed, in other words, to compete directly with starch-based ethanol in the U.S. fuel market.

The national baseline forecast also assumes that Renewable Identification Numbers (RIN) credits can be accumulated in years when ethanol production and consumption is greater than the mandated level. These RIN credits can then be applied against the mandates in future years. The baseline forecast assumes that these credits will be used to reduce mandated ethanol production by 500 million gallons each in 2009 and 2010. This will, in turn, reduce the ethanol industry's growth immediately prior to the potential elimination of the ethanol import tariff at the beginning of 2011.

Removal of the U.S. tariff would provide a price incentive to sugar producers. Expansion of sugar cane area could occur in several areas of Brazil. It is estimated that Brazil could expand their exports of sugar-based ethanol an additional 1 to 2 billion gallons to the United States.

IHS Global Insight evaluated an alternative scenario forecast. In this alternative scenario, it is assumed that crude oil prices remain near their current level and the regulatory cap on ethanol blending remains at 10% through the forecast period. These assumptions reduce the potential market for starch-based ethanol, increasing the impact of ethanol imports and causing negative impacts on corn prices to be more severe than the baseline forecast.

The combined effect of assuming that crude oil prices stay relative low ($51.25 per barrel through the forecast period) and the regulatory cap remains unchanged causes U.S. domestic demand to be 9% lower than the baseline forecast in the 2011/2012 marketing year. This gap widens to 14% in 2012/2013, before narrowing to 4% annually for remainder of the forecast period. U.S. corn prices drop by more than 30 cent per bushel from the baseline forecast in 2011/2012, and then show a drop of nearly 20 cents per bushel for the rest of the forecast period.

2. **Commodity Price and Yield Impacts of Removing the Ethanol Import Tariff**

IHS Global Insight also made annual, commodity-specific price and yield forecasts for each state affected by the potential import tariff removal based on the national baseline and alternative forecasts.

Removing the ethanol import tariff is expected to decrease both the domestic price and production of ethanol (see Table 2 and Figure 2). Domestic prices and production are expected to decline sharply from 2010 to 20012 and rise somewhat in 2013. After 2013, the domestic ethanol price will rise slowly throughout the remainder of the forecast period (to 2020). However, the price is not expected to reach the pre ethanol removal level. Domestic ethanol production is expected to increase from the 2012 low to about 2,500 million gallons in 2015 and then remain approximately at this level for the rest of the forecast period.

Like most commodities experiencing changes in prices and yields, removing the ethanol import tariff will also cause price and yield impacts on other related commodities—for example, corn because it is a major input in the production of ethanol in the U.S. Also, the prices and yields of soybeans, wheat, barley, and sorghum are impacted because the shifts in corn production result in changes in the land available for the production of other field crops. These price and yields changes are shown in Table 3 and Figure 3.

Table 2

Ethanol Price ($/gallon) Changes Due to Removal of the Ethanol Import Tariff											
Commodity	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Ethanol	-$0.08	-$0.19	-$0.32	-$0.31	-$0.21	-$0.15	-$0.13	-$0.12	-$0.10	-$0.14	-$0.07
Ethanol Quantity (millions of gallons) Changes Due to Removal of the Ethanol Import Tariff											
Commodity	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Ethanol	-971	-2,832	-3,673	-3,155	-2,533	-2,347	-2,492	-2,538	-2,496	-2,639	-2,489

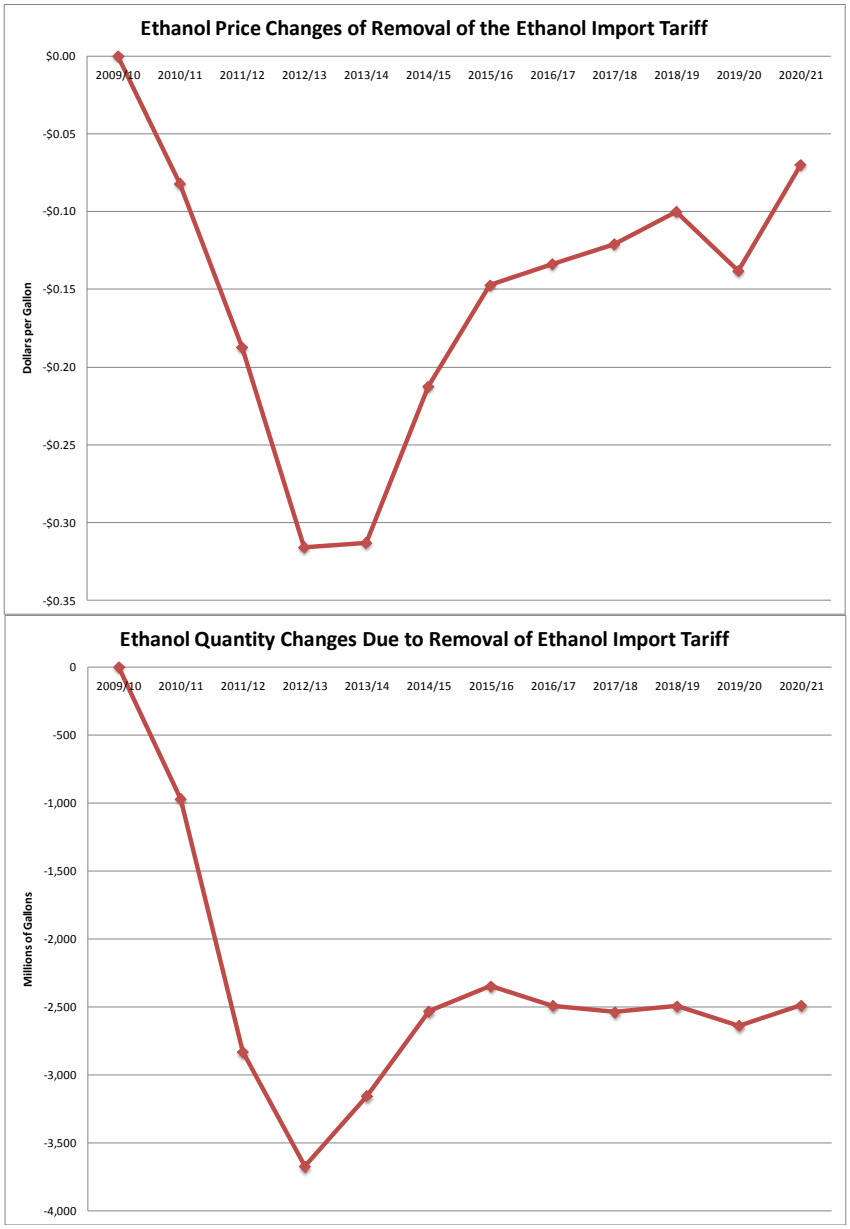


Figure 2

Table 3

Crop Price ($/bushel) Changes Due to Removal of the Ethanol Import Tariff											
Crop	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Corn	-$0.16	-$0.32	-$0.29	-$0.21	-$0.17	-$0.18	-$0.20	-$0.19	-$0.19	-$0.21	-$0.20
Soybeans	-$0.05	-$0.25	-$0.37	-$0.31	-$0.22	-$0.19	-$0.21	-$0.22	-$0.21	-$0.21	-$0.21
Wheat	-$0.05	-$0.14	-$0.17	-$0.13	-$0.10	-$0.10	-$0.10	-$0.11	-$0.10	-$0.11	-$0.11
Barley	-$0.15	-$0.29	-$0.25	-$0.18	-$0.16	-$0.16	-$0.18	-$0.17	-$0.17	-$0.19	-$0.18
Sorghum	-$0.12	-$0.23	-$0.21	-$0.16	-$0.14	-$0.14	-$0.15	-$0.15	-$0.15	-$0.16	-$0.16
Crop Quantity (thousands of bushels) Changes Due to Removal of the Ethanol Import Tariff											
Crop	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Corn	-48,557	-605,398	-1,109,585	-981,646	-733,348	-617,305	-661,178	-707,820	-682,061	-668,619	-748,897
Soybeans	14,635	120,423	198,908	162,680	117,463	100,424	111,439	116,796	111,666	109,945	123,968
Wheat	-277	19,627	36,000	29,105	21,136	18,559	19,644	21,853	20,422	20,541	23,353
Barley	92	-3,987	-6,487	-4,506	-2,812	-2,838	-3,123	-3,409	-3,107	-3,107	-3,648
Sorghum	70	-3,525	-4,063	-1,408	-710	-1,266	-1,616	-1,789	-1,342	-1,390	-1,890

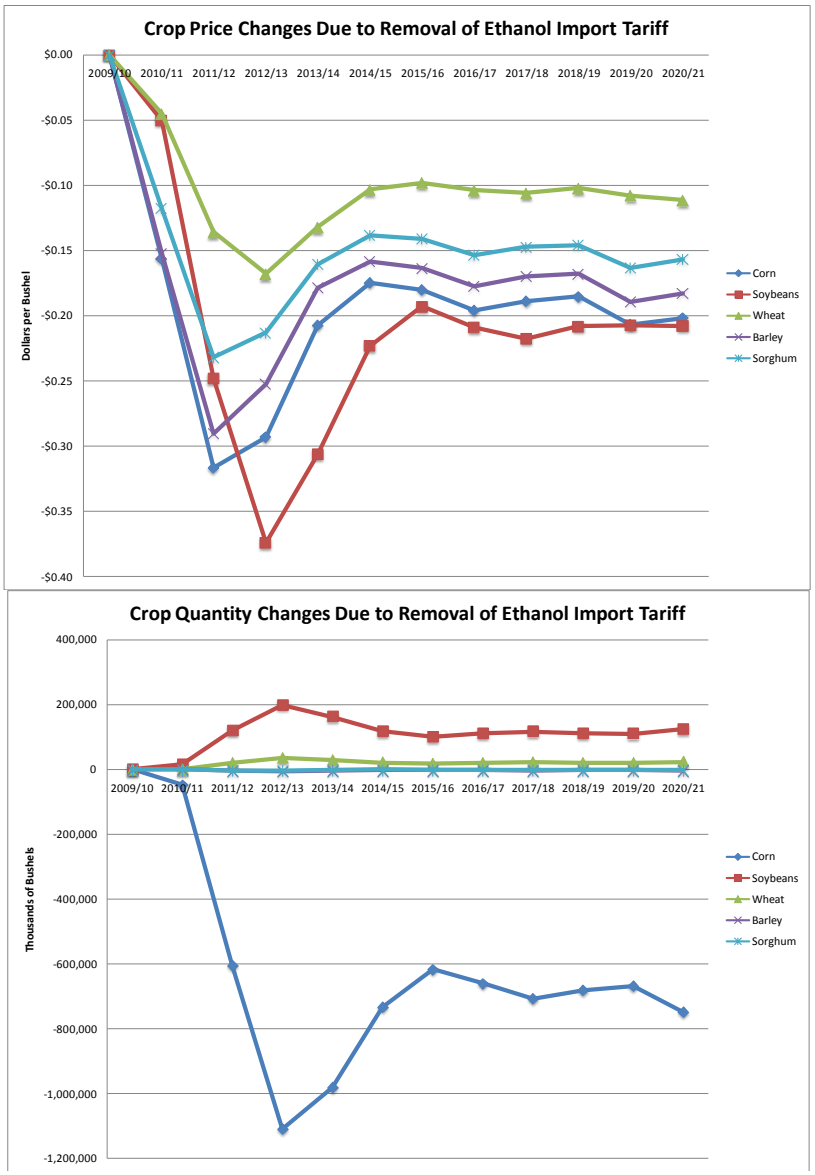


Figure 3

3. Economic Impact Results

The Direct Economic Impact Results

There are two types of economic impacts reviewed here. The first type of economic impact analysis is to compute the change in monetary value (the price times the yield) of the commodities that occurs because of the removal of the ethanol import tariff. This change in value represents the primary or direct economic impact of the ethanol import tariff removal.

Removing the ethanol import tariff is expected to reduce overall total commodity value in an annual pattern similar to that of ethanol production—a sharp decline of about 18 billion dollars during the first three forecast years, rising by about 6 billion dollars for the next three forecast years, and then remaining about the same for the rest of the forecast period (see Figure 4).

Table 4 and Figure 5 shows the annual changes in direct commodity value attributable to each commodity affected by the ethanol import tariff removal. By far, ethanol and corn producers experience the greatest losses due to removing the ethanol import tariff. Table 5 shows the geographic (or state) incidence of the direct commodity value losses. First among the commodity value losses are the producers in Iowa, followed by Illinois and Nebraska. Rounding out the first six largest commodity value losses are the producers in Minnesota, Indiana and South Dakota.

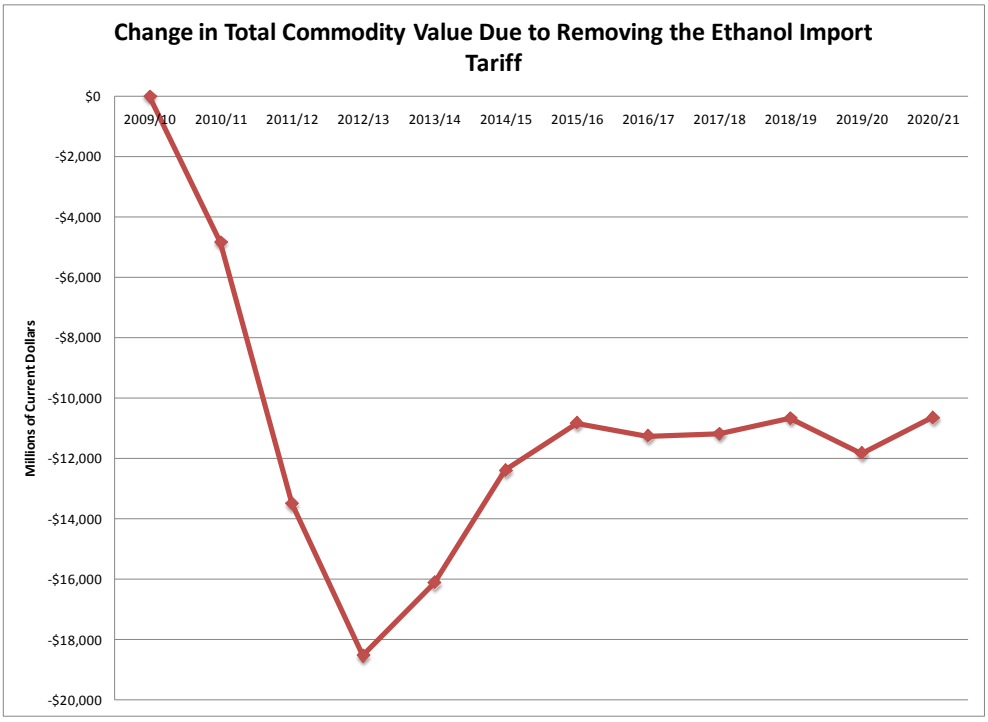


Figure 4

Table 4

Changes in Commodity Value Due to Removal of Ethanol Import Tariff by Commodity (millions of current dollars)											
Commodity	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Ethanol	-$2,520	-$7,027	-$10,609	-$9,815	-$7,333	-$6,038	-$6,082	-$5,975	-$5,608	-$6,514	-$5,285
Corn	-$2,128	-$6,403	-$8,069	-$6,404	-$5,056	-$4,717	-$5,087	-$5,120	-$4,932	-$5,144	-$5,263
Soybeans	-$28	$250	$439	$314	$172	$120	$121	$117	$78	$53	$117
Wheat	-$84	-$145	-$120	-$96	-$85	-$90	-$99	-$95	-$99	-$113	-$110
Barley	-$29	-$67	-$70	-$49	-$38	-$39	-$42	-$41	-$39	-$42	-$42
Sorghum	-$48	-$106	-$99	-$68	-$56	-$60	-$66	-$64	-$62	-$68	-$67
Grand Total	-$4,837	-$13,497	-$18,529	-$16,119	-$12,394	-$10,824	-$11,255	-$11,179	-$10,661	-$11,829	-$10,650

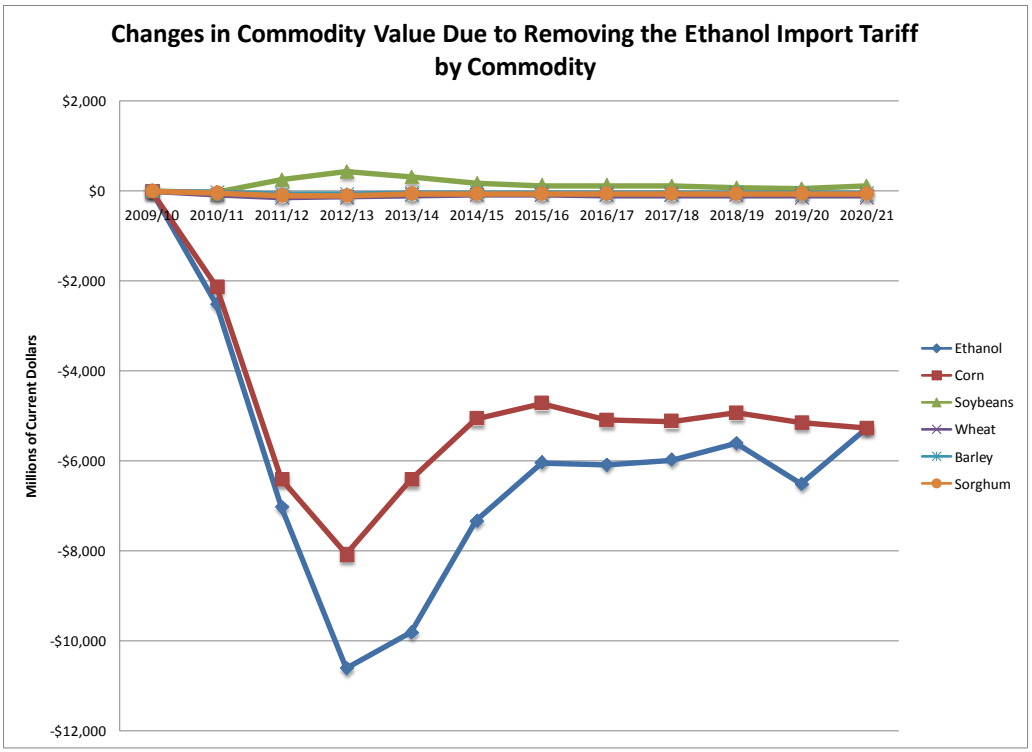


Figure 5

Table 5

Changes in Commodity Value Due to Removal of Ethanol Import Tariff by State (millions of current dollars)											
State Name	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-$2	-$5	-$102	-$105	-$93	-$4	-$4	-$4	-$80	-$87	-$7
California	-$55	-$147	-$231	-$204	-$143	-$107	-$100	-$90	-$75	-$86	-$58
Colorado	-$57	-$153	-$201	-$167	-$130	-$114	-$119	-$119	-$114	-$128	-$119
Georgia	-$31	-$85	-$123	-$109	-$82	-$70	-$70	-$69	-$63	-$70	-$60
Idaho	-$26	-$67	-$90	-$76	-$56	-$48	-$48	-$46	-$42	-$46	-$40
Illinois	-$640	-$1,698	-$2,226	-$1,886	-$1,478	-$1,343	-$1,415	-$1,405	-$1,343	-$1,481	-$1,375
Indiana	-$343	-$908	-$1,229	-$1,054	-$816	-$724	-$753	-$742	-$700	-$775	-$698
Iowa	-$1,088	-$2,888	-$3,995	-$3,495	-$2,710	-$2,390	-$2,477	-$2,451	-$2,316	-$2,597	-$2,312
Kansas	-$220	-$568	-$733	-$623	-$493	-$445	-$468	-$467	-$451	-$506	-$464
Kentucky	-$39	-$116	-$154	-$129	-$101	-$92	-$98	-$99	-$96	-$101	-$100
Louisiana	-$20	-$60	-$79	-$63	-$49	-$45	-$48	-$48	-$46	-$47	-$48
Michigan	-$103	-$283	-$380	-$327	-$260	-$233	-$246	-$245	-$235	-$257	-$237
Minnesota	-$398	-$1,087	-$1,461	-$1,249	-$988	-$883	-$927	-$919	-$873	-$948	-$873
Missouri	-$136	-$349	-$442	-$375	-$302	-$280	-$300	-$300	-$293	-$326	-$305
Nebraska	-$578	-$1,594	-$2,205	-$1,923	-$1,502	-$1,322	-$1,375	-$1,380	-$1,326	-$1,489	-$1,353
New Mexico	-$3	-$8	-$67	-$66	-$58	-$53	-$53	-$52	-$12	-$14	-$10
New York	-$44	-$116	-$176	-$153	-$108	-$84	-$79	-$73	-$62	-$71	-$52
North Carolina	-$20	-$168	-$207	-$194	-$85	-$75	-$77	-$77	-$73	-$78	-$74
North Dakota	-$135	-$421	-$614	-$540	-$419	-$369	-$383	-$389	-$371	-$400	-$379
Ohio	-$200	-$520	-$681	-$591	-$471	-$431	-$457	-$458	-$446	-$503	-$460
Oregon	-$32	-$85	-$132	-$117	-$83	-$64	-$60	-$55	-$47	-$53	-$37
Pennsylvania	-$19	-$247	-$295	-$283	-$97	-$85	-$87	-$85	-$79	-$87	-$77
South Dakota	-$274	-$789	-$1,147	-$1,028	-$799	-$699	-$721	-$726	-$695	-$776	-$702
Tennessee	-$56	-$156	-$223	-$199	-$154	-$134	-$138	-$138	-$131	-$147	-$131
Texas	-$133	-$369	-$518	-$441	-$330	-$282	-$286	-$278	-$254	-$274	-$242
Washington	-$12	-$127	-$154	-$148	-$133	-$47	-$48	-$47	-$43	-$47	-$42
Wisconsin	-$169	-$473	-$650	-$564	-$446	-$395	-$413	-$409	-$389	-$425	-$387
Wyoming	-$4	-$10	-$14	-$11	-$9	-$8	-$8	-$8	-$8	-$8	-$8
Grand Total	-$4,837	-$13,497	-$18,529	-$16,119	-$12,394	-$10,824	-$11,255	-$11,179	-$10,661	-$11,829	-$10,650

The Total Economic Impact Results

The second type of economic impact analysis is to evaluate the consequences of the direct economic changes on related employment and value added. The employment impact is measured here as the change in the number of people employed in full-time or part-time positions. Value added is a composite measure that includes the costs of employing workers (for example, wages and salaries and employers' contribution to workers' social insurance and health insurance), proprietors' income, other property-type income (rents, dividends, profits, interest payments), and indirect business taxes (sales, business property taxes, licenses and fees). Value added represents the value that businesses add to goods and services that they produce. Value added is the broadest type of income measure and in aggregate is equal to gross domestic product (GDP). The methodology, models, and procedures used to evaluate the regional (or state-level) economic impacts in this report are discussed in Appendix A. In addition, the monetary values presented herein represent current price levels.

The first impact summary reviewed (Table 8) is for total output (business sales), total employment (full- & part-time jobs), and total value added by aggregate industrial sectors for all 28 states as a whole. For all industries as whole, it is estimated that impacts will rise quickly during the first 5 years of the forecast period and reach a peak in 2012 and then decline to about half the peak value by 2020. From an industrial point of view, manufacturing will experience the largest declines in output and value added

(about one-third of the total). Services, finance and real estate, agriculture and agricultural services, and wholesale and retail trade will experience losses in output value added about half the size of manufacturing. However, in terms of employment (full- & part-time jobs), services will experience the greatest job losses, followed by agriculture and agricultural services, wholesale and retail trade, finance and real estate, transportation, and manufacturing.

Total Employment and Value Added. Figure 6 shows the total employment and value effects of removing the ethanol import tariff.[3] Removing the ethanol import tariff is expected to reduce overall total employment and value added in an annual pattern similar to that of ethanol production—a sharp decline of about 160,000 full- and part-time jobs and 36 billion dollars during the first three forecast years, recovering approximately half of the losses during the next three forecast years, and then slowly rising during the rest of the forecast period.

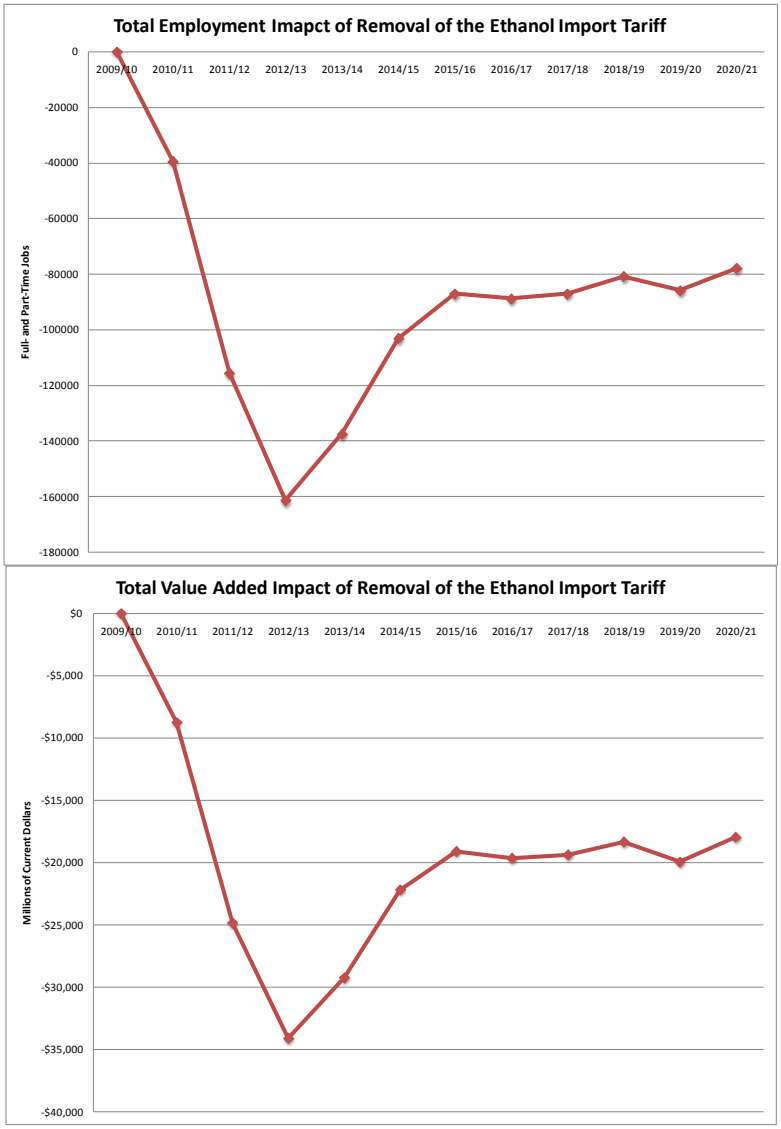


Figure 6

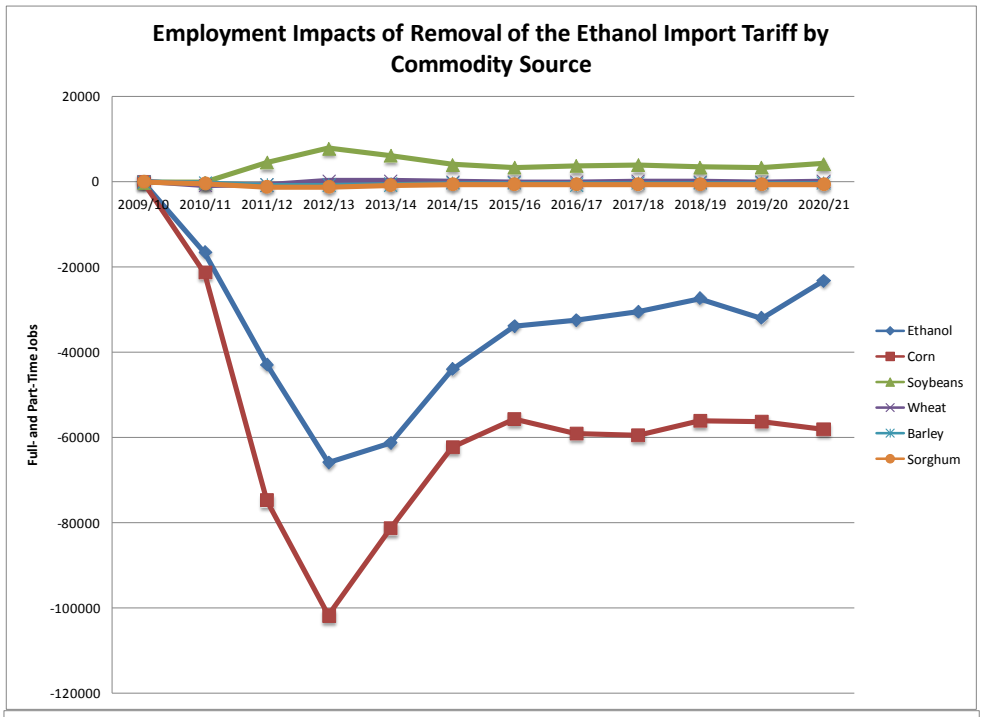
[3] Geographically, total means the sum of the impacts generated in the 28 states considered in this report.

Employment and Value Added Impacts by Commodity. The pattern of the state-level employment and value added impact by commodity is basically the same as the pattern of the changes in commodity value (see Table 6 and Figure 7). That is, the employment and value added effects due to changes in the value of ethanol and corn are both negative and much larger (in absolute terms) that those due to soybeans, wheat, barley and sorghum. Note that the loss in full- and part-time jobs due to corn is greater than for ethanol and that this pattern is reversed for value added impacts. During 2012 (the peak impact year), the total employment losses related to ethanol production is expected to be approximately 65,900 while the job losses related the effects on corn yields are about 101,700.

Interestingly, the total employment impacts stemming from the ethanol import tariff removal on soybean yields are employment gains rather than job losses (as with ethanol production and corn, barley, and sorghum yields). On the other hand, the employment and value added impacts due to changes in wheat yields stemming from the ethanol import tariff removal are a "mixed bag"—sometimes negative and sometimes positive.

Table 6

Total Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Tariff By Commodity											
Commodity	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Ethanol	-16,552	-42,924	-65,877	-61,244	-43,967	-33,818	-32,429	-30,533	-27,355	-31,997	-23,276
Corn	-21,366	-74,798	-101,705	-81,311	-62,255	-55,680	-59,063	-59,463	-56,117	-56,237	-58,049
Soybeans	-81	4,575	7,923	6,173	4,047	3,407	3,737	3,931	3,506	3,339	4,239
Wheat	-803	-599	251	182	37	-48	-45	94	33	-31	132
Barley	-271	-708	-775	-519	-378	-381	-405	-397	-366	-382	-387
Sorghum	-433	-1,169	-1,201	-789	-599	-624	-677	-662	-603	-631	-634
Total for all commodities	-39,506	-115,624	-161,384	-137,508	-103,116	-87,143	-88,881	-87,030	-80,901	-85,939	-77,975
Total Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars)											
Commodity	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Ethanol	-$5,112	-$14,465	-$21,630	-$19,815	-$14,863	-$12,345	-$12,519	-$12,355	-$11,707	-$13,467	-$11,139
Corn	-$3,830	-$12,290	-$16,053	-$12,832	-$10,052	-$9,268	-$9,981	-$10,090	-$9,696	-$10,035	-$10,329
Soybeans	$1	$863	$1,459	$1,099	$689	$535	$563	$571	$476	$422	$569
Wheat	-$144	-$201	-$119	-$97	-$95	-$110	-$124	-$113	-$122	-$147	-$137
Barley	-$46	-$115	-$125	-$86	-$66	-$67	-$73	-$72	-$68	-$73	-$74
Sorghum	-$82	-$192	-$183	-$123	-$99	-$108	-$119	-$116	-$111	-$122	-$120
Total for all commodities	-$9,213	-$26,400	-$36,651	-$31,854	-$24,487	-$21,363	-$22,252	-$22,174	-$21,228	-$23,422	-$21,230


Employment Impacts of Removal of the Ethanol Import Tariff by Commodity Source
20000
0
-20000
-40000
-60000
-80000
-100000
-120000
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
Full- and Part-Time Jobs
Ethanol
Corn
Soybeans
Wheat
Barley
Sorghum

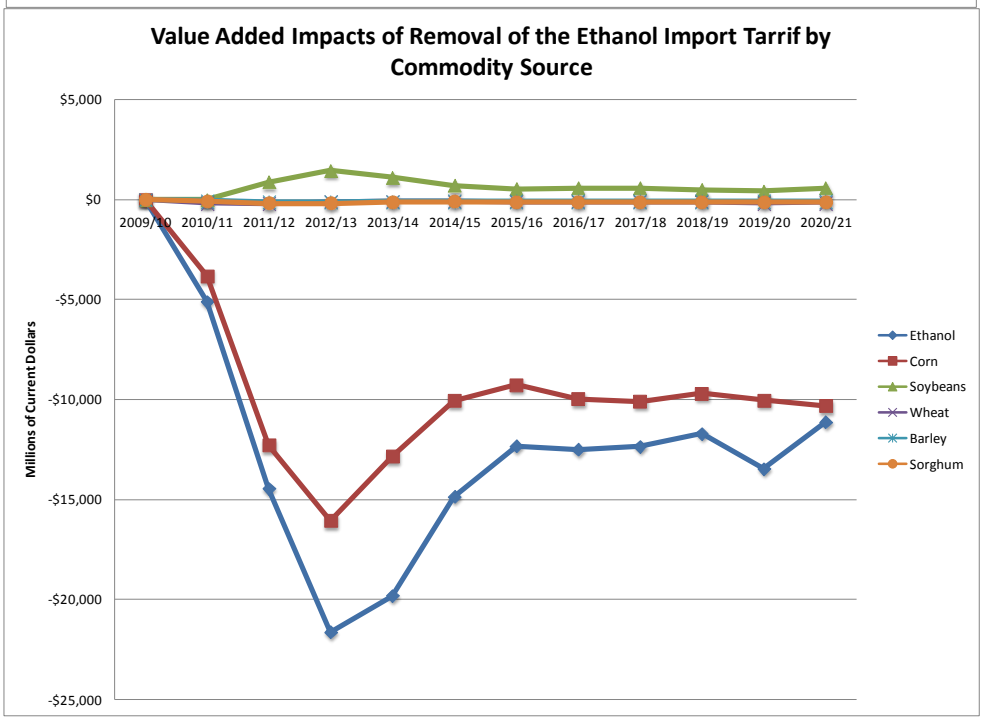

Value Added Impacts of Removal of the Ethanol Import Tarriff by Commodity Source
$5,000
$0
-$5,000
-$10,000
-$15,000
-$20,000
-$25,000
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
Millions of Current Dollars
Ethanol
Corn
Soybeans
Wheat
Barley
Sorghum

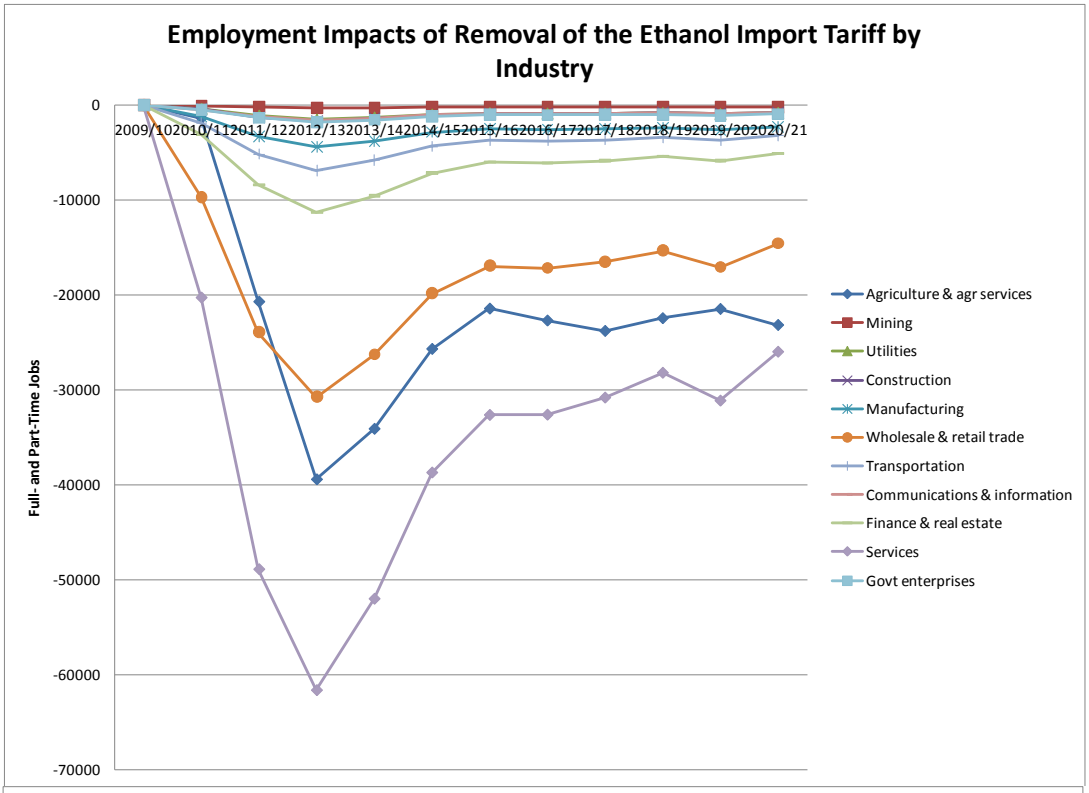
Figure 7

Employment and Value Added Impacts by Industry. The temporal patterns of industry-level employment and value added impacts are basically the same as for the other economic impacts—a sharp decline in employment and value added during the first three years of the forecast period, followed by a recovery of about half of the initial losses during the next three years, and then a maintenance of the level for the rest of the forecast period.

Although the general temporal patterns of the industry-level employment and value added impacts are similar to the other impacts, the industrial mix of the employment impacts are quite different from that for the value added impacts. Based on the peak impact year (2012/13), for example, the six industrial sectors experiencing the largest employment losses are (in order) services, wholesale & retail trade, finance & real estate, transportation, agriculture & agricultural services, and manufacturing. The six industrial sectors that have the largest value added losses are (in order) manufacturing, services, finance & real estate, wholesale & retail trade, agriculture & agricultural services, and utilities.

Table 7

Total Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Industry											
Sector	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-1,391	-20,711	-39,411	-34,092	-25,681	-21,441	-22,695	-23,789	-22,449	-21,476	-23,165
Mining	-69	-202	-284	-243	-186	-163	-169	-169	-161	-175	-159
Utilities	-388	-1,104	-1,514	-1,300	-999	-861	-891	-884	-853	-933	-834
Construction	-431	-1,230	-1,668	-1,399	-1,040	-882	-890	-862	-801	-849	-751
Manufacturing	-1,249	-3,345	-4,450	-3,812	-2,894	-2,507	-2,580	-2,532	-2,406	-2,661	-2,354
Wholesale & retail trade	-9,716	-23,964	-30,769	-26,299	-19,834	-16,965	-17,195	-16,511	-15,338	-17,103	-14,579
Transportation	-1,869	-5,178	-6,937	-5,844	-4,371	-3,726	-3,783	-3,675	-3,452	-3,714	-3,263
Communications & information	-482	-1,199	-1,552	-1,333	-1,012	-872	-892	-865	-815	-920	-795
Finance & real estate	-3,099	-8,413	-11,320	-9,587	-7,169	-6,036	-6,095	-5,874	-5,425	-5,865	-5,119
Services	-20,295	-48,906	-61,640	-52,013	-38,719	-32,654	-32,625	-30,826	-28,212	-31,146	-25,998
Govt enterprises	-515	-1,372	-1,839	-1,587	-1,209	-1,037	-1,065	-1,043	-988	-1,098	-959
Misc non-industry	0	0	0	0	0	0	0	0	0	0	0
Total for all industries	-39,506	-115,624	-161,384	-137,508	-103,116	-87,143	-88,881	-87,030	-80,901	-85,939	-77,975
Total Value Added Impacts Due to Removal of the Ethanol Import Tariff By Industry (millions of current dollars)											
Industry	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-$131	-$1,828	-$3,559	-$3,125	-$2,383	-$1,982	-$2,086	-$2,186	-$2,075	-$2,004	-$2,135
Mining	-$53	-$156	-$221	-$190	-$146	-$130	-$136	-$137	-$130	-$142	-$132
Utilities	-$419	-$1,217	-$1,685	-$1,459	-$1,125	-$994	-$1,042	-$1,046	-$1,016	-$1,123	-$1,024
Construction	-$90	-$256	-$353	-$307	-$236	-$207	-$215	-$215	-$206	-$228	-$206
Manufacturing	-$2,237	-$6,672	-$9,271	-$8,014	-$6,178	-$5,496	-$5,777	-$5,827	-$5,674	-$6,242	-$5,756
Wholesale & retail trade	-$1,412	-$3,672	-$4,867	-$4,232	-$3,253	-$2,838	-$2,940	-$2,891	-$2,752	-$3,104	-$2,723
Transportation	-$353	-$1,016	-$1,407	-$1,218	-$939	-$823	-$861	-$862	-$834	-$921	-$836
Communications & information	-$192	-$486	-$638	-$555	-$427	-$371	-$384	-$376	-$357	-$405	-$351
Finance & real estate	-$1,736	-$4,518	-$6,019	-$5,240	-$4,024	-$3,490	-$3,608	-$3,537	-$3,341	-$3,760	-$3,296
Services	-$2,462	-$6,234	-$8,161	-$7,102	-$5,459	-$4,759	-$4,921	-$4,817	-$4,574	-$5,191	-$4,506
Govt enterprises	-$128	-$346	-$471	-$411	-$316	-$273	-$283	-$280	-$268	-$300	-$265
Misc non-industry	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total for all industries	-$9,213	-$26,400	-$36,651	-$31,854	-$24,487	-$21,363	-$22,252	-$22,174	-$21,228	-$23,422	-$21,230


Employment Impacts of Removal of the Ethanol Import Tariff by Industry
Full- and Part-Time Jobs
0
-10000
-20000
-30000
-40000
-50000
-60000
-70000
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
Agriculture & agr services
Mining
Utilities
Construction
Manufacturing
Wholesale & retail trade
Transportation
Communications & information
Finance & real estate
Services
Govt enterprises

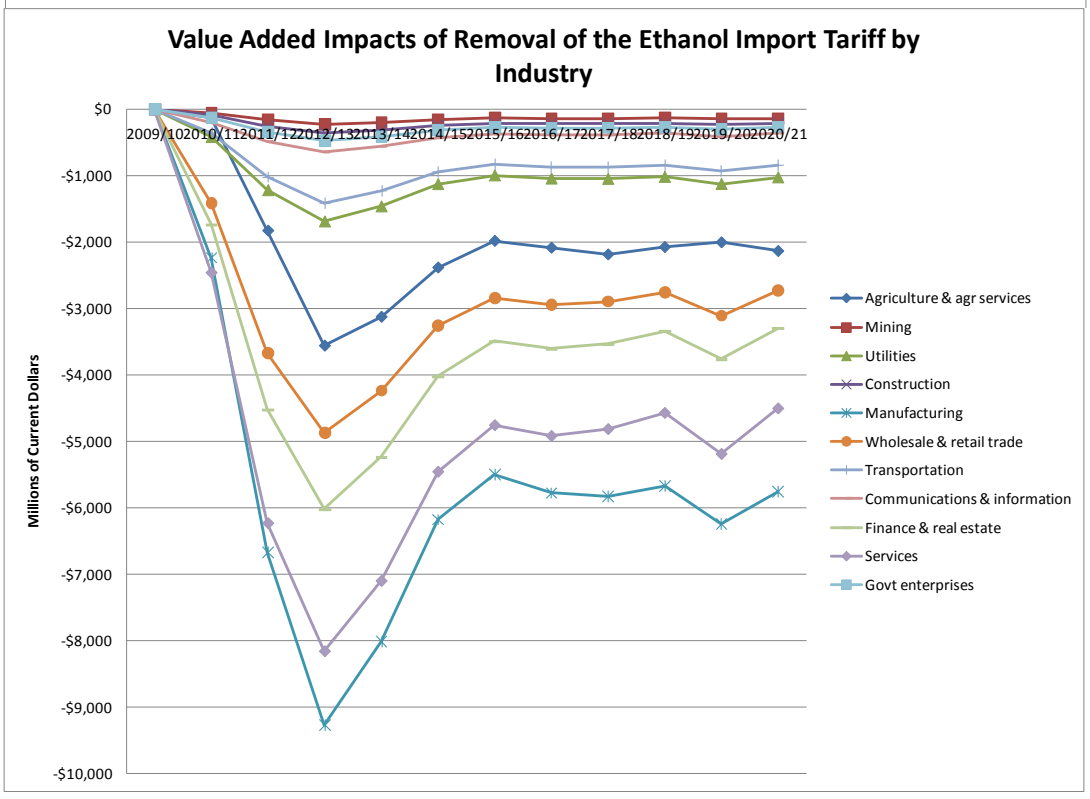

Value Added Impacts of Removal of the Ethanol Import Tariff by Industry
Millions of Current Dollars
$0
-$1,000
-$2,000
-$3,000
-$4,000
-$5,000
-$6,000
-$7,000
-$8,000
-$9,000
-$10,000
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
2019/20
2020/21
Agriculture & agr services
Mining
Utilities
Construction
Manufacturing
Wholesale & retail trade
Transportation
Communications & information
Finance & real estate
Services
Govt enterprises

Figure 8

Employment and Value Added Impacts by State. Table 8 presents the total employment and value added effects of the ethanol import tariff removal by state. The temporal pattern of impacts for the states is basically the same as for the industry-specific effects. The pattern of impact magnitudes are quite similar between states regardless of whether the impacts are expressed as output, employment or value added. The 6 states that are expected to experience the largest declines in economic activity due to removal of the ethanol import tariff are (in order) Iowa, Illinois, Nebraska, Minnesota, Indiana, and South Dakota.

More Detailed Employment and Value Added Impacts. Industrial and state-level economic impacts by commodity are presented in Appendices B and C for the readers review, however, they are not discussed herein.

4. Conclusions

In this report we summarize a state-level economic impact assessment of the potential removal of the ethanol import tariff in 2011. The impacts analyzed herein not only include those caused by changes in the import tariff on ethanol production and on its most important input (i.e., corn) but also include the impacts on related crop commodities (i.e., soybeans, wheat, barley, and sorghum). Impacts are computed for every state that eight contains one or more existing ethanol fuel plants but also for those states that have ethanol plants under construction.

The results indicate that removal of the ethanol import tariff at the end of 2010 will likely result in economic losses in aggregate for each of 28 states considered here. This is true regardless of whether the impacts are measured in employment or value added. However, this conclusion is not universally true for all commodities analyzed in this report. The impacts that stem from soybeans tend to positive—not negative.

An additional caveat is noted here concerning the interpretation of the regional economic impact results presented in this report. That is, the regional economic effects shown should be taken as only one part of the total effects that will be generated by removing the ethanol import tariff. The focus here has been the regional economic effects generated by ethanol tariff removal on only the most directly effects commodities—ethanol production and crop yields. The effects of production and price changes in these commodities have been addressed. As such, this report provides a rather comprehensive analysis of the regional economic effects of the most direct consequences of removing the ethanol import tariff.

However, this report in no way addresses the regional economic effects of removing the ethanol import tariff on the prices and production of other fuels (such as gasoline), animal feeds and meats (beef, pork, poultry, etc.), or other related consumer goods and services—especially in light of the expected significant declines ethanol and crop prices. Without consideration of these additional effects, the results herein cannot be interpreted as a general evaluation of the regional economic effects of removing the ethanol import tariff.

Table 8

Total Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By State											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-17	-57	-669	-665	-569	-42	-44	-44	-443	-470	-58
California	-337	-938	-1,468	-1,292	-894	-666	-619	-564	-474	-527	-383
Colorado	-478	-1,360	-1,824	-1,460	-1,090	-889	-909	-891	-829	-892	-825
Georgia	-213	-681	-1,048	-922	-673	-553	-552	-545	-497	-528	-476
Idaho	-214	-578	-770	-635	-463	-392	-394	-380	-345	-365	-331
Illinois	-5,661	-15,706	-20,772	-17,276	-13,137	-11,633	-12,065	-11,879	-11,169	-11,937	-11,192
Indiana	-2,747	-7,752	-10,610	-8,955	-6,734	-5,832	-5,999	-5,881	-5,487	-5,883	-5,412
Iowa	-8,579	-22,474	-30,597	-26,332	-19,673	-16,723	-16,910	-16,357	-15,088	-16,586	-14,468
Kansas	-1,845	-4,776	-6,126	-5,012	-3,799	-3,235	-3,302	-3,203	-2,983	-3,253	-2,914
Kentucky	-327	-1,548	-2,461	-2,113	-1,578	-1,365	-1,417	-1,472	-1,393	-1,388	-1,443
Louisiana	-163	-713	-1,084	-900	-662	-577	-604	-621	-580	-569	-592
Michigan	-816	-2,662	-3,831	-3,223	-2,507	-2,110	-2,179	-2,107	-1,920	-1,875	-1,751
Minnesota	-3,405	-9,946	-13,597	-11,343	-8,766	-7,484	-7,701	-7,431	-6,803	-6,875	-6,318
Missouri	-1,362	-3,873	-5,207	-4,365	-3,406	-3,045	-3,205	-3,184	-3,049	-3,246	-3,086
Nebraska	-4,790	-12,883	-17,618	-14,990	-11,248	-9,382	-9,463	-9,217	-8,545	-9,376	-8,236
New Mexico	-24	-104	-438	-410	-343	-305	-297	-292	-117	-124	-106
New York	-254	-795	-1,226	-1,054	-743	-582	-562	-534	-469	-503	-424
North Carolina	-180	-1,046	-1,384	-1,229	-748	-638	-650	-652	-609	-624	-602
North Dakota	-1,092	-3,609	-5,337	-4,632	-3,477	-2,966	-3,007	-3,018	-2,818	-2,931	-2,790
Ohio	-1,584	-4,420	-6,012	-5,102	-3,889	-3,397	-3,523	-3,463	-3,268	-3,536	-3,234
Oregon	-230	-600	-938	-846	-591	-441	-411	-375	-317	-354	-250
Pennsylvania	-177	-1,691	-2,152	-1,939	-969	-820	-830	-821	-754	-788	-738
South Dakota	-2,184	-6,439	-9,498	-8,419	-6,297	-5,258	-5,264	-5,196	-4,813	-5,213	-4,633
Tennessee	-413	-1,675	-2,784	-2,513	-1,866	-1,546	-1,560	-1,596	-1,492	-1,538	-1,481
Texas	-920	-3,739	-5,858	-4,974	-3,599	-3,017	-3,062	-3,096	-2,829	-2,847	-2,782
Washington	-97	-741	-960	-891	-749	-383	-385	-378	-348	-357	-329
Wisconsin	-1,374	-4,721	-6,972	-5,898	-4,559	-3,787	-3,889	-3,752	-3,390	-3,280	-3,047
Wyoming	-22	-96	-145	-118	-86	-76	-78	-79	-73	-75	-75
Total for all states	-39,506	-115,624	-161,384	-137,508	-103,116	-87,143	-88,881	-87,030	-80,901	-85,939	-77,975

Total Value Added Impacts Due to Removal of the Ethanol Import Tariff by State (millions of current dollars)											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-$3	-$10	-$270	-$279	-$247	-$7	-$8	-$8	-$211	-$231	-$17
California	-$128	-$343	-$541	-$474	-$330	-$248	-$230	-$206	-$171	-$195	-$132
Colorado	-$117	-$320	-$424	-$352	-$275	-$241	-$253	-$254	-$245	-$273	-$255
Georgia	-$64	-$176	-$258	-$227	-$171	-$146	-$148	-$145	-$133	-$147	-$127
Idaho	-$44	-$117	-$163	-$137	-$100	-$84	-$85	-$81	-$74	-$80	-$71
Illinois	-$1,437	-$3,872	-$5,137	-$4,353	-$3,418	-$3,108	-$3,275	-$3,262	-$3,118	-$3,428	-$3,196
Indiana	-$618	-$1,671	-$2,288	-$1,959	-$1,518	-$1,349	-$1,405	-$1,388	-$1,310	-$1,444	-$1,309
Iowa	-$1,914	-$5,197	-$7,252	-$6,325	-$4,916	-$4,355	-$4,526	-$4,497	-$4,259	-$4,746	-$4,274
Kansas	-$402	-$1,062	-$1,385	-$1,176	-$933	-$845	-$890	-$893	-$866	-$969	-$897
Kentucky	-$63	-$205	-$286	-$243	-$188	-$170	-$180	-$184	-$177	-$186	-$186
Louisiana	-$32	-$105	-$148	-$120	-$91	-$82	-$87	-$90	-$85	-$86	-$89
Michigan	-$195	-$545	-$736	-$634	-$506	-$456	-$481	-$480	-$462	-$504	-$467
Minnesota	-$817	-$2,281	-$3,097	-$2,646	-$2,099	-$1,877	-$1,974	-$1,961	-$1,864	-$2,013	-$1,865
Missouri	-$278	-$720	-$921	-$782	-$633	-$588	-$629	-$631	-$619	-$688	-$645
Nebraska	-$1,072	-$3,032	-$4,223	-$3,672	-$2,882	-$2,553	-$2,667	-$2,691	-$2,599	-$2,904	-$2,674
New Mexico	-$4	-$15	-$145	-$143	-$127	-$116	-$114	-$113	-$24	-$27	-$20
New York	-$93	-$250	-$382	-$330	-$233	-$179	-$168	-$153	-$130	-$147	-$107
North Carolina	-$33	-$316	-$398	-$376	-$159	-$139	-$144	-$145	-$137	-$145	-$138
North Dakota	-$222	-$722	-$1,073	-$948	-$736	-$649	-$673	-$687	-$658	-$705	-$675
Ohio	-$349	-$915	-$1,201	-$1,041	-$834	-$766	-$813	-$818	-$798	-$899	-$826
Oregon	-$69	-$181	-$283	-$248	-$176	-$135	-$128	-$116	-$98	-$111	-$77
Pennsylvania	-$38	-$582	-$696	-$672	-$215	-$188	-$192	-$189	-$176	-$193	-$172
South Dakota	-$504	-$1,493	-$2,186	-$1,957	-$1,528	-$1,344	-$1,391	-$1,409	-$1,354	-$1,504	-$1,379
Tennessee	-$113	-$317	-$454	-$406	-$314	-$275	-$283	-$284	-$271	-$303	-$271
Texas	-$270	-$785	-$1,129	-$959	-$714	-$609	-$616	-$603	-$549	-$587	-$525
Washington	-$21	-$267	-$327	-$315	-$286	-$93	-$94	-$92	-$84	-$91	-$81
Wisconsin	-$307	-$884	-$1,226	-$1,061	-$842	-$747	-$783	-$779	-$742	-$805	-$740
Wyoming	-$5	-$17	-$23	-$19	-$15	-$13	-$14	-$14	-$13	-$14	-$14
Total for all states	-$9,213	-$26,400	-$36,651	-$31,854	-$24,487	-$21,363	-$22,252	-$22,174	-$21,228	-$23,422	-$21,230

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Appendix A
Impact Analysis Methodology, Models and Procedures

Methodology

Regional economic impact analysis can be conducted using a variety of models. However, one of the most popular methods is the use of input-output impact models.[4] An input-output model is fundamentally an accounting framework for measuring the inter-industry relationships between producers and their consumers within a regional economy. The accounts are converted into a regional economic impact model by imposing several assumptions on the accounting relationships.

The usual representation of these inter-industry relationships is $\mathbf{X = A \times X + Y}$ where **X** is a column vector of industry production levels (output), **A** is a square matrix of unit-level production requirements (based on a dollar's worth of production), and **Y** is a column vector of final demand purchases. If one assumes that the inter-industry technical relationships in **A** are fixed (or at least not likely to change because of an impact scenario)[5] then a simple solution for production levels based on final demand purchases can be derived:

[1] $$\mathbf{\Delta X = (I-A)^{-1} \Delta Y}$$

Here the symbol **Δ** means "change in" or $\mathbf{\Delta Y = Y_A - Y_B}$ ($\mathbf{Y_B}$ is the baseline value of final demand and $\mathbf{Y_A}$ is the alternative scenario value of final demand). The matrix $\mathbf{(I-A)^{-1}}$ is the "multiplier" matrix. The multiplier matrix contains industry-specific coefficients that measure the direct, indirect and induced effects on industrial production levels (output) due to a one-dollar change in industrial final demand.

In most cases, it is assumed that the prices of the commodities in final demand do not change because of an impact scenario. As a consequence, equation [1] provides a valid approach to estimating the economic impacts of the scenario. However, if the prices of the commodities in final demand do change due to an impact scenario the equation [1] is not valid and an alternative impact approach is needed. One method that is frequently used for impact situations where prices are affected by impact scenarios is to use computable general equilibrium (CGE) models. However, if the price changes under consideration are themselves changes in equilibrium prices then another, more simple approach standard input-output impact assessment techniques is possible.

Suppose we consider a change in value for a commodity (any commodity):

[2] $$\mathbf{\Delta V = P_A Q_A - P_B Q_B}$$

where **ΔV** is the change in value for the commodity between the baseline and alternative scenarios, $\mathbf{P_B}$ and $\mathbf{P_A}$ are the baseline and alternative scenario equilibrium prices for the commodity, and $\mathbf{Q_B}$ and $\mathbf{Q_A}$ are the baseline and alternative scenario equilibrium quantities purchased for the commodity.

If we hold prices fixed at their baseline scenario levels the we can calculate a change in value holding prices fixed

[4] Other popular regional economic impact models include econometric, economic base, and computable general equilibrium.
[5] One of the assumptions underlying the input-output model is that prices are not affected by an impact scenario.

[3] $$\Delta V_{\Delta Q} = P_B \Delta Q.$$

Subtracting $\Delta V_{\Delta Q}$ from ΔV derives

$$\begin{aligned}\Delta V - \Delta V_{\Delta Q} &= P_A Q_A - P_B Q_B - P_B \Delta Q \\ &= P_A Q_A - P_B Q_B - P_B (Q_A - Q_B) \\ &= P_A Q_A - P_B Q_B - P_B Q_A - P_B Q_B \\ &= P_A Q_A - P_B Q_A\end{aligned}$$

[4] $$\Delta V - \Delta V_{\Delta Q} = \Delta P\, Q_A = \Delta V_{\Delta p}$$ (change in value holding quantities fixed)

In other words, a change in value can be simply expressed as the sum of the change value due to quantity change (prices fixed) and the change in value due to price change (quantities fixed).

The significance of computing the regional economic impacts of removing the ethanol import tariff due to quantity changes and prices correctly is shown by the importance of the sources of value change relative to the total value change (see Figure A.1)—the value changes due to price changes is almost identical in size to those due to quantity changes.

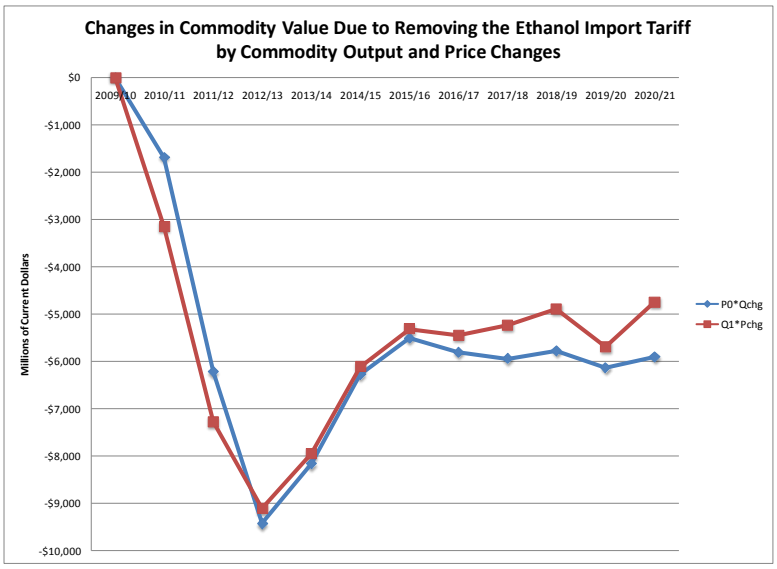

Figure A.1

The regional economic impacts of the value changes where prices are fixed are just the standard input-output impact scenario where $\Delta Y_{\Delta Q} = V_{\Delta Q} = P_B \Delta Q$ and equation [1] can be used. However, the value changes where quantities are fixed represent a loss in value to the "owner" of the commodity sold. This can be thought of as a change in income to the commodity owners. Here again, equation [1] provides a valid impact analysis approach if the change in final demand represents a set of income expenditure changes for the commodity owners ($\Delta Y_{\Delta P} = V_{\Delta P} = \Delta P\, Q_A$). The total regional economic impacts of the value changes are computed by simply summing the regional economic impacts due to the quantity changes ($\Delta X_{\Delta Q} = (I-A)^{-1} \Delta Y_{\Delta Q}$) and the regional economic impacts of the price changes ($\Delta X_{\Delta P} = (I-A)^{-1} \Delta Y \Delta P$).

IMPLAN Models

IMPLAN is an input –output modeling system designed to serve three functions: (1) data retrieval, (2) data reduction and model development, and (3) impact analysis. IMPLAN provides comprehensive and detailed data for the entire U.S. by county, and the ability to incorporate user-supplied data at each stage of the model building process. The IMPLAN database consists of two major parts: a national-level technology matrix and estimates of industry activity for final demand, final payments, industry output and employment for each county in the U.S. along with state and national totals.

The IMPLAN software provides users with a high degree of flexibility both in terms of geographic coverage (through its available databases) for model formulation and construction. The software performs the calculations and provides an interface for the user to make final demand changes. The IMPLAN software also provides users with highly sophisticated regional economic impact assessment tools. IMPLAN easily allows the user to do the following:

- Develop multiplier tables;
- Develop a complete set of SAM (Social Accounting Matrix) accounts;
- Change any component of the system, production functions, trade flows, or database;
- Generate type I, II, or any true SAM multiplier internalizing household, government, and/or investment activities
- Create custom impact analysis by entering final demand changes;
- Obtain any report in the system to examine the model's assumptions and calculations.

IMPLAN generates 440 industry-specific sets of multipliers are available for a variety of impact measures. Output (or business sales) is the most comprehensive production indication for businesses. Employment is measured in terms of full- and part-time jobs by "place of work". Employee compensation is wages and salaries plus other employment-related business costs (such as employer unemployment compensation contributions, health insurance payments, etc.). Proprietors' income is payments to owners of sole proprietor and partnership businesses. Other property-type income includes dividends, profits, rents and other income payments to firm share-holders. Indirect business taxes are tax license and fees paid to local, State and federal governments. Included also are Total value added multipliers (sum of employee compensation, proprietors' income, other property-type income, and indirect business taxes). Total value added is the most comprehensive income measure available to economists and is also a measure of contribution to gross domestic product (or GDP).

Each of the impact measures of composed of four effects. The direct effect measure the initial change caused by a scenario. The Indirect effect measure the inter-industry consequences caused by the direct effect. The induced effect measures the additional interactions generated by workers receiving their income and spending it in the local region (state in this case). The sum of the direct, indirect and induced effects is called the total effect.

Regional Economic Assessment Procedures

Using the 2007 IMPLAN database (latest available), input-output models were developed for each of the 28 states that currently have (or will have in the near future) ethanol production plants (see Table2). Type II multipliers were compiled for each state.

The changes in value due to quantity changes, $\Delta V_{\Delta Q} = P_B \Delta Q = \Delta Y_{\Delta Q}$ (prices fixed) and due to price changes, $\Delta V_{\Delta p} = \Delta P\, Q_A = \Delta Y_{\Delta P}$ (quantities fixed) have been computed and are provided in the attached Excel spreadsheet entitled, "Val_Chg.xlsx".

All impact calculations were carried out at the most detailed level annually from 2008 to 2020. For each state, there are 6 commodities affected by the change in the ethanol import tariff (i.e., soybeans, corn, wheat, barley, sorghum, and ethanol). Also, impacts were analyzed for both the value changes due to quantity changes, $\Delta X_{\Delta Q} = (I-A)^{-1} \Delta Y_{\Delta Q}$ (fixed prices) and the value changes due to price changes, $\Delta X_{\Delta P} = (I-A)^{-1} \Delta Y_{\Delta P}$ (quantities fixed). Results were computed both in terms of constant price levels and in terms consistent with the current price-levels (re-inflated).

Impacts of value changes due to quantity changes (fixed prices). The analysis of regional economic impacts for the crop commodities (i.e., soybeans, corn, wheat, barley, and sorghum) were each applied to one of two IMPLAN sectors. The impacts of changes in value due to quantity changes ($\Delta V_{\Delta Q} = P_B \Delta Q = \Delta Y_{\Delta Q}$) in soybean production were computed using IMPLAN sector 001 (oilseed farming). For the other crop commodities IMPLAN sector 002 (grain farming) was used to compute the impacts of changes in value due to quantity changes.

The impacts of value changes due to quantity changes (fixed prices) for ethanol were more complicated than the crop commodities. Because there is no specific IMPLAN sector for ethanol production the impacts have to be calculated using a user-specified expenditures pattern. Both Swenson (2008) and Low and Isserman (2008) discuss the importance of this issue in detail and provide their personal estimation of appropriate expenditure patterns for a 100 MGY (million gallons per year) ethanol production plant: see Tables A.1 and A.2 for their estimates. In their estimates corn is the most important input for ethanol production considered and it accounts for more than half of the total costs to produce ethanol fuel (they both estimate around 60 percent of the costs for corn purchases). Unfortunately, there is not much detail provided in Tables A.1 and A.2 concern inputs other than corn. In several cases the researchers disagree about the specific cost proportions for these other inputs (e.g., labor, natural gas and chemicals).

Table A.1

Typical Distribution of Ethanol Plant Input Costs

Primary Inputs	%
Corn	59.5%
All technical, service, transport & depreciation	17.4%
Natural gas	8.8%
Chemicals	6.0%
Return to investors	2.5%
Labor	2.1%
Electricity	1.8%
Water	1.3%
Indirect taxes	0.6%
Total	100.0%
Source: David Swenson. 2008. "The Economic Impact of	
Ethanol Production in Iowa." Iowa State Univ,	
Economics Department (January).	

Table A.2

Costs of a Hypothetical 100 MGY Ethanol Plant				
			Input Costs	%
Primary	Corn		$131,000,000	61.89%
Inputs	Electricity		$6,000,000	2.83%
	Natural Gas		$30,182,400	14.26%
Other	Enzymes		$5,432,832	2.57%
Inputs	Yeasts		$2,490,048	1.18%
	Chemicals	Processing & Antibiotics	$2,163,680	1.02%
		Boiling & Cooling	$679,104	0.32%
	Denaturants		$4,094,835	1.93%
	Water		$600,000	0.28%
	Real Estate Taxe, Licenses & Admin		$2,000,000	0.94%
	Unspecified Costs		$7,857,143	3.71%
	Interest (avg of 1st 5 years)		$8,875,951	4.19%
	All Other Unspecified		$7,857,143	3.71%
	Total Material Inputs		$209,233,136	98.85%
Labor & Management			$2,437,500	1.15%
Total of All Inputs			$211,670,636	100.00%
Source: Sarah A. Low and Andrew M. Isserman. 2008. "Ethanal:				
	Implications for Rural Communities." Presented at the			
	American Agricultural Economics Association Annual			
	Meetings, Orlando, FL, July 27-29.			

Table A.3

Wet Corn Milling Input Purchases		Purchase Proportions of Total based 2002=1 values	
IMPLAN 2007 codes	Commodity	Prod Price	Purch Price
1	Oilseed farming	1.28%	1.46%
2	Grain farming	37.12%	53.40%
20	Oil and gas extraction	0.01%	0.01%
21	Coal mining	0.44%	0.72%
31	Electric power generation, transmission, and distribution	4.08%	4.08%
32	Natural gas distribution	5.98%	5.98%
33	Water, sewage and other systems	0.21%	0.21%
39	Nonresidential maintenance and repair	0.64%	0.64%
44	Wet corn milling	0.03%	0.03%
84	Textile bag and canvas mills	0.02%	0.03%
106	Paperboard mills	0.13%	0.15%
107	Paperboard container manufacturing	0.63%	0.69%
108	Coated and laminated paper, packaging paper and plastics filr	0.05%	0.05%
109	All other paper bag and coated and treated paper manufactur	1.30%	1.42%
112	All other converted paper product manufacturing	0.05%	0.06%
115	Petroleum refineries	0.42%	0.51%
126	Other basic organic chemical manufacturing	1.54%	1.69%
142	Plastics packaging materials and unlaminated film and sheet n	0.12%	0.13%
149	Other plastics product manufacturing	0.05%	0.05%
163	Other concrete product manufacturing	0.01%	0.01%
170	Iron and steel mills and ferroalloy manufacturing	0.01%	0.01%
183	Crown and closure manufacturing and metal stamping	0.02%	0.02%
202	Other fabricated metal manufacturing	0.37%	0.49%
216	Air conditioning, refrigeration, and warm air heating equipme	0.01%	0.01%
228	Material handling equipment manufacturing	0.01%	0.02%
236	Computer terminals and other computer peripheral equipmer	0.04%	0.05%
237	Telephone apparatus manufacturing	0.00%	0.00%
238	Broadcast and wireless communications equipment	0.00%	0.00%
239	Other communications equipment manufacturing	0.00%	0.00%
247	Other electronic component manufacturing	0.05%	0.07%
269	Relay and industrial control manufacturing	0.16%	0.23%
283	Motor vehicle parts manufacturing	0.22%	0.23%
313	Office supplies (except paper) manufacturing	0.00%	0.00%
319	Wholesale trade	10.10%	0.01%
332	Air transportation	0.17%	0.14%
333	Rail transportation	2.69%	0.00%
334	Water transportation	0.17%	0.00%
336	Truck transportation	4.58%	0.08%
337	Pipeline transportation	0.00%	0.00%
338	Scenic and sightseeing transportation and support activities fo	0.99%	0.99%
340	Warehousing and storage	0.08%	0.08%
351	Telecommunications	0.15%	0.15%
352	Internet service providers and web search portals	0.29%	0.29%
354	Monetary authorities and depository credit intermediation	0.86%	0.86%
355	Nondepository credit intermediation and related activities	0.13%	0.13%
356	Securities, commodity contracts, investments, and related act	0.23%	0.23%
357	Insurance carriers	0.01%	0.01%

Table A.3 (continued)

Wet Corn Milling Input Purchases (continued)		Purchase Proportions of Total based 2002=1 values	
IMPLAN 2007 codes	Commodity	Prod Price	Purch Price
360	Real estate	0.51%	0.51%
362	Automotive equipment rental and leasing	0.18%	0.18%
363	General and consumer goods rental except video tapes and di	0.01%	0.01%
365	Commercial and industrial machinery and equipment rental a	0.09%	0.09%
366	Lessors of nonfinancial intangible assets	0.37%	0.37%
367	Legal services	0.27%	0.27%
368	Accounting, tax preparation, bookkeeping, and payroll service	0.26%	0.26%
369	Architectural, engineering, and related services	0.27%	0.27%
370	Specialized design services	0.22%	0.22%
371	Computer systems design services	0.06%	0.06%
373	Other computer related services, including facilities managem	0.11%	0.11%
374	Management, scientific, and technical consulting services	0.16%	0.16%
375	Environmental and other technical consulting services	0.02%	0.02%
376	Scientific research and development services	0.17%	0.17%
377	Advertising and related services	0.15%	0.15%
380	All other miscellaneous professional, scientific, and technical s	0.66%	0.66%
381	Management of companies and enterprises	4.31%	4.31%
382	Employment services	0.21%	0.21%
384	Office administrative services	0.04%	0.04%
385	Facilities support services	0.03%	0.03%
386	Business support services	0.23%	0.23%
387	Investigation and security services	0.09%	0.09%
388	Services to buildings and dwellings	0.57%	0.57%
389	Other support services	0.10%	0.10%
390	Waste management and remediation services	0.52%	0.52%
402	Performing arts companies	0.00%	0.00%
403	Spectator sports	0.01%	0.01%
404	Promoters of performing arts and sports and agents for public	0.01%	0.01%
405	Independent artists, writers, and performers	0.04%	0.04%
407	Fitness and recreational sports centers	0.01%	0.01%
410	Other amusement and recreation industries	0.01%	0.01%
411	Hotels and motels, including casino hotels	0.22%	0.22%
413	Food services and drinking places	0.38%	0.38%
414	Automotive repair and maintenance, except car washes	0.39%	0.39%
415	Car washes	0.01%	0.01%
416	Electronic and precision equipment repair and maintenance	0.09%	0.09%
417	Commercial and industrial machinery and equipment repair a	0.33%	0.33%
418	Personal and household goods repair and maintenance	0.08%	0.08%
425	Civic, social, professional and similar organizations	0.10%	0.10%
432	Other state and local government enterprises	0.16%	0.16%
436	Noncomparable imports	0.12%	0.12%
5001	Compensation of employees	8.23%	8.23%
	Retail trade	0.00%	0.00%
	Taxes on production and imports, less subsidies	0.35%	0.35%
	Gross operating surplus	4.36%	4.36%
	Grand Total	100.00%	100.00%

Source: Bureau of Economic Analysis. 2002 Input-Output Accounts of the United States. Washington, DC: U.S. Department of Commerce (September 2007).

Another approach often taken by researchers to estimate the regional economic impacts of ethanol production is to use the wet corn milling sector in IMPLAN (sector 044) or "borrow" the respective sector from the National Input-Output table (BEA, 2007). Table A.2 shows both the producer and purchaser price input structure for the wet corn milling sector from the National Input-Output Accounts. The difference between the producer price values and the purchaser price values is that the latter includes the trade and transportation "margins" required to bring the commodities to the market ("what the buyer pays"). Both Swenson (2008) and Low and Isserman (2008) consider the wet corn milling sector an inappropriate choice to represent the expenditure pattern for ethanol production. It appears that they both were comparing their results with the producer price values (specifically, the 37 percent cost proportion). However, it appears that the purchaser price input pattern (percentages) derived from the National Input-Output Accounts (Table A.3) compare favorably with those presented in Tables A.1 and A.2. As a result, the purchaser price input proportions (percentages) in Table A.3 were used to compute the impacts of the value changes due quantity changes for ethanol production.

Impacts of value changes due to price changes (fixed quantities). The impact of the value changes due to price changes ($\Delta V_{\Delta p} = \Delta P\ Q_A = \Delta Y_{\Delta P}$) for all commodities were computed by interpreting the value changes as changes in income for the owners of the farms and the share-holders of the ethanol plants. It was assumed that these income changes would be spent as income by households with annual income levels equivalent to the farmers and ethanol shareholders. IMPLAN has 9 such household expenditure patterns:

Household Income

- Less than $10,000
- Between $10,000 and $15,000
- Between $15,000 and $25,000
- Between $25,000 and $35,000
- Between $35,000 and $50,000
- Between $50,000 and $75,000
- Between $75,000 and $100,000
- Between $100,000 and $150,000
- More than $150,000

Table A.4

2005 Operator Household Income, for Farm Operator Households, by Economic Class		$1,000,000 or more	$500,000 to $999,999	$250,000 to $499,999	$100,000 to $249,999	Less than $100,000	All farms
All States	Farm households (number of farms)	30,072	41,537	85,773	160,980	1,734,834	2,053,196
	Total operator household income (dollars per farm)	452,859	186,776	117,707	79,893	70,806	81,420
	On farm	403,806	139,341	82,381	34,924	-326.3	14,637
	Off farm	49,052	47,434	35,326	44,969	71,132	66,782
	Percent of U.S. average household income	714.9	294.9	185.8	126.1	111.8	128.5

Source: Agricultural Resource Management Survey (ARMS), USDA.

Last Updated: April 30, 2007.

According to the Agricultural Resource Management Survey (USDA, 2007) average annual farm household income during 2005 is approximately $81,500 (see Table A.4). This includes income earner both on and off farm. The household expenditure pattern for household making an annual income between $75,000 and $100,000 was selected for crop commodity value changes due to price changes.

The same income expenditure pattern was also selected for the value changes due to price changes for ethanol plant share-holders.

Impact adjustments to the oilseed and grain farm sectors. Several adjustments to the impact results were made for the crop impacts. Because both oilseed and grain production is restricted by the available land that is planted in any give year, farmers are very limited in their ability to adjust the production levels for these crops (unlike other sectors). As a result, we assumed that the quantity changes for the crops represented equilibrium quantity changes and that no second effects on either oilseeds or grain production beyond the initial equilibrium quantity changes would occur. That is, we equated the direct output effects for oilseed output to the value change due to quantity change for soybeans and we equated the direct output effects for grain output to the value changes due to quantity changes for the other crops. All indirect effects and induced effects on the oilseed and grain farm sectors were set to zero. All impact effects (direct, indirect, and induced) on the oilseed and grain farm sectors were set to zero in the case of the impacts of the value changes due to price changes.

Two sets of monetary impact results are expressed in thousands of dollars—one set of impact results are in thousands of 2007 dollars and another set of impact results are in thousands of current dollars. For each scenario run there are 7 impact measures, 4 impact effects for each measure, and 440 detailed industries each. This amounts to impact results that are quite voluminous. As a consequence, careful summaries of the detailed impact results were made and included as Excel spreadsheets attached to this report for the readers' review.[6] Several highly aggregated summaries of the detailed impact assessments are present here. In general, the results presented here are either aggregated industrially to a 12 sector breakdown (see Table A.5 for the industrial aggregation scheme) or to the state-level.

Table A.5

Scenario Impact Sectors

Num	Sector	2007 IMPLAN Codes*
1	Agriculture & agr services	001-019, 379
2	Mining	020-030
3	Utilities	031-033, 428, 431
4	Construction	034-040
5	Manufacturing	041-318
6	Wholesale & retail trade	319-331
7	Transportation	332-340, 430
8	Communications & information	341-353
9	Finance & real estate	354-361
10	Services	362-426 (exc 379)
11	Govt enterprises	427, 429, 432
12	Misc non-industry	443-440

*Olson, Douglas C. and Scott A. Lindall. 2004. IMPLAN Professional Version 2.0 Social Accounting & Impact Analysis Software: User Guide, Analysis Guide and Data Guide. 3rd Edition. Stillwater, MN: Minnesota IMPLAN Group (MIG), Inc. (February).

[6] However, the detailed impact results are available on request.

Appendix B
Industrial Employment and Value Added Impact of Removing the Ethanol Import Tariff by Commodity

Table B.1

Industrial Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Ethanol											
Sector	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-98	-249	-408	-401	-289	-217	-206	-193	-170	-213	-139
Mining	-47	-136	-199	-175	-134	-115	-119	-118	-112	-125	-109
Utilities	-290	-843	-1,207	-1,060	-808	-681	-698	-692	-668	-739	-641
Construction	-295	-828	-1,162	-1,003	-736	-610	-608	-586	-543	-590	-497
Manufacturing	-717	-2,014	-2,963	-2,674	-1,986	-1,640	-1,653	-1,620	-1,530	-1,736	-1,442
Wholesale & retail trade	-4,045	-10,458	-16,312	-15,391	-11,106	-8,565	-8,245	-7,805	-7,008	-8,318	-6,034
Transportation	-1,291	-3,663	-5,182	-4,494	-3,309	-2,736	-2,736	-2,649	-2,478	-2,707	-2,274
Communications & information	-206	-536	-837	-789	-574	-445	-433	-413	-377	-451	-331
Finance & real estate	-1,263	-3,223	-5,000	-4,681	-3,362	-2,562	-2,444	-2,293	-2,046	-2,416	-1,717
Services	-8,043	-20,267	-31,530	-29,579	-20,926	-15,661	-14,707	-13,601	-11,898	-14,093	-9,618
Govt enterprises	-257	-707	-1,079	-998	-737	-586	-581	-563	-525	-608	-473
Misc non-industry	0	0	0	0	0	0	0	0	0	0	0
Total for all industries	-16,552	-42,924	-65,877	-61,244	-43,967	-33,818	-32,429	-30,533	-27,355	-31,997	-23,276
Industrial Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Corn											
Sector	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-2,305	-30,303	-55,303	-46,729	-34,628	-29,082	-30,976	-32,504	-30,550	-29,371	-32,002
Mining	-18	-65	-88	-70	-53	-47	-50	-51	-48	-49	-50
Utilities	-89	-244	-291	-226	-178	-167	-178	-177	-169	-177	-177
Construction	-131	-446	-588	-458	-342	-300	-311	-305	-282	-279	-279
Manufacturing	-476	-1,179	-1,293	-983	-785	-753	-803	-784	-751	-794	-785
Wholesale & retail trade	-4,960	-11,198	-11,351	-8,445	-6,857	-6,731	-7,164	-6,891	-6,592	-7,017	-6,808
Transportation	-522	-1,407	-1,642	-1,259	-982	-911	-962	-939	-887	-914	-905
Communications & information	-243	-553	-566	-425	-347	-344	-370	-360	-349	-377	-372
Finance & real estate	-1,692	-5,165	-6,471	-5,007	-3,819	-3,436	-3,598	-3,528	-3,300	-3,337	-3,330
Services	-10,704	-23,659	-23,461	-17,210	-13,862	-13,523	-14,238	-13,517	-12,797	-13,508	-12,926
Govt enterprises	-227	-579	-652	-501	-401	-385	-413	-407	-391	-415	-413
Misc non-industry	0	0	0	0	0	0	0	0	0	0	0
Total for all industries	-21,366	-74,798	-101,705	-81,311	-62,255	-55,680	-59,063	-59,463	-56,117	-56,237	-58,049
Industrial Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Soybeans											
Sector	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	1,037	9,030	14,659	11,643	8,188	6,971	7,571	7,891	7,312	7,136	7,890
Mining	0	3	5	3	2	1	1	1	1	1	2
Utilities	-3	-2	-3	-4	-5	-5	-6	-7	-7	-8	-6
Construction	4	58	92	69	44	34	36	35	30	28	32
Manufacturing	-24	-82	-123	-102	-81	-71	-78	-82	-81	-83	-79
Wholesale & retail trade	-325	-1,427	-2,184	-1,766	-1,320	-1,131	-1,218	-1,260	-1,205	-1,200	-1,176
Transportation	-18	-29	-37	-36	-35	-34	-39	-41	-43	-46	-38
Communications & information	-16	-68	-104	-85	-64	-56	-61	-64	-62	-63	-62
Finance & real estate	-19	204	340	234	123	80	75	67	38	20	53
Services	-706	-3,071	-4,657	-3,729	-2,761	-2,344	-2,502	-2,566	-2,433	-2,402	-2,334
Govt enterprises	-12	-41	-64	-55	-44	-39	-43	-45	-44	-45	-43
Misc non-industry	0	0	0	0	0	0	0	0	0	0	0
Total for all industries	-81	4,575	7,923	6,173	4,047	3,407	3,737	3,931	3,506	3,339	4,239

Table B.1 (continued)

Industrial Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Wheat											
Sector	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-28	1,331	2,397	1,850	1,336	1,188	1,253	1,377	1,265	1,271	1,436
Mining	-1	-1	1	1	0	0	0	0	0	0	0
Utilities	-4	-8	-7	-6	-5	-5	-5	-5	-5	-6	-6
Construction	-5	-5	0	0	-1	-2	-2	-1	-2	-2	-2
Manufacturing	-17	-40	-43	-34	-27	-27	-28	-28	-28	-30	-31
Wholesale & retail trade	-201	-528	-606	-474	-368	-350	-368	-367	-353	-373	-377
Transportation	-20	-41	-39	-30	-25	-24	-26	-25	-25	-27	-26
Communications & information	-10	-25	-29	-23	-18	-17	-18	-19	-18	-19	-20
Finance & real estate	-66	-95	-61	-49	-45	-50	-55	-51	-53	-61	-58
Services	-442	-1,164	-1,334	-1,032	-793	-745	-777	-769	-731	-764	-766
Govt enterprises	-10	-24	-26	-21	-17	-16	-17	-17	-17	-19	-19
Misc non-industry	0	0	0	0	0	0	0	0	0	0	0
Total for all industries	-803	-599	251	182	37	-48	-45	94	33	-31	132
Industrial Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Barley											
Sector	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	2	-201	-317	-205	-125	-126	-139	-148	-131	-129	-147
Mining	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Utilities	-1	-3	-3	-2	-1	-1	-2	-1	-1	-1	-1
Construction	-2	-5	-5	-3	-2	-2	-2	-2	-2	-2	-2
Manufacturing	-5	-10	-10	-7	-5	-6	-6	-6	-6	-6	-6
Wholesale & retail trade	-69	-125	-111	-76	-63	-64	-67	-63	-60	-65	-61
Transportation	-7	-14	-14	-10	-7	-7	-8	-7	-7	-7	-7
Communications & information	-4	-7	-6	-4	-3	-4	-4	-4	-3	-4	-4
Finance & real estate	-22	-52	-55	-37	-27	-27	-29	-27	-25	-27	-26
Services	-160	-283	-247	-169	-138	-139	-144	-134	-126	-136	-127
Govt enterprises	-4	-8	-7	-5	-4	-4	-4	-4	-4	-4	-4
Misc non-industry	0	0	0	0	0	0	0	0	0	0	0
Total for all industries	-271	-708	-775	-519	-378	-381	-405	-397	-366	-382	-387
Industrial Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Sorghum											
Sector	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	1	-318	-440	-250	-162	-175	-199	-213	-176	-170	-202
Mining	-1	-3	-2	-1	-1	-1	-1	-1	-1	-1	-1
Utilities	-2	-4	-4	-3	-2	-2	-2	-2	-2	-2	-2
Construction	-2	-5	-5	-3	-2	-2	-3	-3	-2	-2	-2
Manufacturing	-10	-20	-18	-13	-10	-11	-12	-11	-11	-12	-11
Wholesale & retail trade	-117	-228	-205	-148	-121	-124	-133	-125	-120	-130	-122
Transportation	-12	-24	-22	-15	-12	-13	-14	-13	-12	-13	-12
Communications & information	-5	-10	-9	-7	-6	-6	-6	-6	-6	-6	-6
Finance & real estate	-38	-82	-74	-48	-38	-41	-44	-42	-39	-43	-41
Services	-241	-462	-411	-294	-238	-242	-256	-239	-227	-244	-226
Govt enterprises	-6	-12	-11	-7	-6	-6	-7	-7	-6	-7	-7
Misc non-industry	0	0	0	0	0	0	0	0	0	0	0
Total for all industries	-433	-1,169	-1,201	-789	-599	-624	-677	-662	-603	-631	-634

Table B.2

Industrial Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Ethanol											
Industry	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-$18	-$46	-$76	-$75	-$54	-$41	-$39	-$37	-$33	-$41	-$27
Mining	-$35	-$99	-$147	-$130	-$100	-$87	-$89	-$89	-$84	-$95	-$83
Utilities	-$325	-$961	-$1,379	-$1,217	-$930	-$809	-$841	-$845	-$821	-$916	-$816
Construction	-$54	-$154	-$228	-$207	-$156	-$131	-$134	-$133	-$126	-$144	-$121
Manufacturing	-$1,943	-$5,846	-$8,259	-$7,211	-$5,536	-$4,887	-$5,117	-$5,164	-$5,030	-$5,563	-$5,070
Wholesale & retail trade	-$671	-$1,835	-$2,828	-$2,654	-$1,967	-$1,581	-$1,572	-$1,530	-$1,423	-$1,678	-$1,303
Transportation	-$240	-$701	-$1,023	-$914	-$696	-$593	-$612	-$611	-$591	-$665	-$577
Communications & information	-$81	-$216	-$342	-$327	-$240	-$188	-$184	-$178	-$163	-$196	-$144
Finance & real estate	-$640	-$1,648	-$2,681	-$2,623	-$1,908	-$1,455	-$1,400	-$1,329	-$1,191	-$1,475	-$1,006
Services	-$1,039	-$2,776	-$4,386	-$4,193	-$3,079	-$2,416	-$2,371	-$2,284	-$2,097	-$2,522	-$1,856
Govt enterprises	-$66	-$184	-$282	-$263	-$196	-$158	-$158	-$155	-$147	-$171	-$135
Misc non-industry	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total for all industries	-$5,112	-$14,465	-$21,630	-$19,815	-$14,863	-$12,345	-$12,519	-$12,355	-$11,707	-$13,467	-$11,139

Industrial Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Corn											
Industry	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-$293	-$3,400	-$6,148	-$5,170	-$3,822	-$3,186	-$3,390	-$3,557	-$3,348	-$3,240	-$3,519
Mining	-$16	-$56	-$77	-$62	-$48	-$43	-$47	-$48	-$46	-$48	-$49
Utilities	-$84	-$239	-$290	-$228	-$182	-$172	-$185	-$186	-$179	-$189	-$192
Construction	-$34	-$103	-$130	-$103	-$82	-$76	-$82	-$83	-$80	-$83	-$85
Manufacturing	-$269	-$799	-$999	-$794	-$627	-$590	-$637	-$642	-$620	-$650	-$664
Wholesale & retail trade	-$651	-$1,550	-$1,651	-$1,263	-$1,039	-$1,031	-$1,119	-$1,102	-$1,074	-$1,161	-$1,155
Transportation	-$102	-$295	-$363	-$287	-$228	-$214	-$231	-$232	-$224	-$235	-$239
Communications & information	-$97	-$226	-$235	-$179	-$148	-$148	-$161	-$158	-$154	-$168	-$166
Finance & real estate	-$980	-$2,595	-$3,008	-$2,347	-$1,891	-$1,820	-$1,969	-$1,960	-$1,898	-$2,012	-$2,030
Services	-$1,248	-$2,884	-$2,987	-$2,270	-$1,882	-$1,888	-$2,052	-$2,015	-$1,968	-$2,139	-$2,118
Govt enterprises	-$55	-$144	-$165	-$128	-$103	-$100	-$108	-$107	-$104	-$111	-$112
Misc non-industry	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total for all industries	-$3,830	-$12,290	-$16,053	-$12,832	-$10,052	-$9,268	-$9,981	-$10,090	-$9,696	-$10,035	-$10,329

Industrial Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Soybeans											
Industry	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	$184.4	$1,527.6	$2,476.3	$1,954.8	$1,370.0	$1,142.7	$1,238.8	$1,291.0	$1,196.0	$1,168.3	$1,290.2
Mining	$0.1	$3.1	$5.2	$3.9	$2.3	$1.8	$2.0	$2.1	$1.8	$1.9	$2.4
Utilities	-$2.7	-$2.5	-$2.9	-$3.7	-$4.6	-$4.7	-$5.5	-$6.1	-$6.8	-$7.6	-$6.0
Construction	-$0.3	$5.7	$9.7	$7.2	$4.3	$3.3	$3.4	$3.4	$2.7	$2.3	$3.4
Manufacturing	-$5.8	$9.9	$20.9	$15.3	$5.1	$2.9	$1.5	$1.0	-$2.1	-$3.6	$2.9
Wholesale & retail trade	-$39.7	-$169.5	-$264.2	-$219.6	-$169.2	-$149.2	-$164.7	-$174.7	-$171.9	-$176.0	-$175.1
Transportation	-$3.4	-$4.9	-$6.3	-$6.3	-$6.7	-$6.7	-$7.8	-$8.5	-$9.3	-$10.1	-$8.4
Communications & information	-$6.1	-$26.7	-$41.7	-$34.6	-$26.6	-$23.4	-$25.8	-$27.3	-$26.8	-$27.4	-$27.3
Finance & real estate	-$43.1	-$116.7	-$171.9	-$149.4	-$126.1	-$115.7	-$130.3	-$140.6	-$145.3	-$155.1	-$143.2
Services	-$80.3	-$353.6	-$552.2	-$456.4	-$349.6	-$306.7	-$338.6	-$358.7	-$351.9	-$359.5	-$359.6
Govt enterprises	-$2.7	-$9.0	-$13.8	-$12.0	-$9.8	-$8.9	-$9.8	-$10.4	-$10.5	-$10.8	-$10.3
Misc non-industry	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total for all industries	$0.7	$863.4	$1,459.1	$1,099.2	$689.2	$535.5	$563.2	$571.2	$476.0	$422.5	$569.0

Table B.2 (continued)

Industrial Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Wheat											
Industry	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-$3.2	$136.5	$252.2	$199.9	$144.4	$126.4	$132.5	$145.9	$134.2	$132.9	$149.8
Mining	-$0.9	-$0.6	$0.4	$0.3	$0.1	-$0.1	-$0.1	$0.0	-$0.1	-$0.3	-$0.2
Utilities	-$3.5	-$6.9	-$6.4	-$5.1	-$4.3	-$4.5	-$4.9	-$4.8	-$4.9	-$5.5	-$5.4
Construction	-$1.3	-$2.2	-$1.8	-$1.5	-$1.3	-$1.4	-$1.5	-$1.5	-$1.5	-$1.7	-$1.7
Manufacturing	-$9.6	-$16.2	-$12.9	-$10.4	-$9.2	-$9.9	-$10.9	-$10.5	-$10.9	-$12.6	-$12.2
Wholesale & retail trade	-$26.4	-$68.5	-$79.0	-$63.1	-$50.4	-$49.2	-$53.1	-$54.0	-$53.2	-$57.6	-$59.3
Transportation	-$3.9	-$7.3	-$6.5	-$5.2	-$4.4	-$4.6	-$5.1	-$5.0	-$5.1	-$5.7	-$5.7
Communications & information	-$4.0	-$10.6	-$12.4	-$9.9	-$7.9	-$7.7	-$8.3	-$8.5	-$8.3	-$9.0	-$9.3
Finance & real estate	-$38.4	-$85.1	-$88.6	-$70.9	-$58.1	-$58.2	-$63.3	-$63.3	-$63.3	-$69.8	-$70.7
Services	-$50.0	-$134.2	-$157.6	-$125.9	-$100.1	-$97.3	-$104.8	-$107.0	-$105.1	-$113.6	-$117.4
Govt enterprises	-$2.4	-$5.6	-$6.0	-$4.8	-$3.9	-$3.9	-$4.2	-$4.2	-$4.2	-$4.6	-$4.7
Misc non-industry	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total for all industries	-$143.7	-$200.7	-$118.7	-$96.5	-$95.3	-$110.3	-$123.7	-$112.8	-$122.5	-$147.5	-$136.7

Industrial Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Barley											
Industry	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	$0.0	-$24.4	-$38.8	-$25.8	-$16.1	-$15.9	-$17.3	-$18.5	-$16.4	-$16.2	-$18.3
Mining	-$0.2	-$0.7	-$0.8	-$0.5	-$0.4	-$0.4	-$0.4	-$0.4	-$0.4	-$0.4	-$0.4
Utilities	-$1.1	-$2.4	-$2.5	-$1.7	-$1.3	-$1.4	-$1.5	-$1.4	-$1.4	-$1.5	-$1.5
Construction	-$0.5	-$1.1	-$1.2	-$0.8	-$0.6	-$0.6	-$0.7	-$0.7	-$0.6	-$0.7	-$0.7
Manufacturing	-$2.8	-$6.6	-$7.0	-$4.8	-$3.7	-$3.8	-$4.1	-$4.0	-$3.9	-$4.1	-$4.2
Wholesale & retail trade	-$8.7	-$16.4	-$15.1	-$10.6	-$8.9	-$9.2	-$9.9	-$9.5	-$9.3	-$10.3	-$10.0
Transportation	-$1.2	-$2.8	-$2.9	-$2.0	-$1.6	-$1.6	-$1.8	-$1.7	-$1.7	-$1.8	-$1.8
Communications & information	-$1.3	-$2.5	-$2.2	-$1.6	-$1.3	-$1.4	-$1.5	-$1.4	-$1.4	-$1.5	-$1.5
Finance & real estate	-$12.3	-$25.3	-$24.4	-$17.0	-$13.7	-$14.3	-$15.4	-$15.0	-$14.5	-$15.9	-$15.7
Services	-$17.0	-$31.6	-$28.6	-$20.2	-$17.0	-$17.6	-$19.0	-$18.2	-$17.8	-$19.7	-$19.2
Govt enterprises	-$0.8	-$1.6	-$1.6	-$1.1	-$0.9	-$0.9	-$1.0	-$1.0	-$0.9	-$1.0	-$1.0
Misc non-industry	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total for all industries	-$46.0	-$115.3	-$125.0	-$86.2	-$65.6	-$67.2	-$72.6	-$71.9	-$68.2	-$73.2	-$74.3

Industrial Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Sorghum											
Industry	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Agriculture & agr services	-$0.3	-$21.5	-$24.3	-$8.9	-$4.8	-$7.8	-$9.8	-$10.5	-$7.9	-$8.1	-$10.2
Mining	-$0.9	-$2.3	-$2.3	-$1.5	-$1.2	-$1.3	-$1.4	-$1.4	-$1.3	-$1.4	-$1.4
Utilities	-$2.2	-$4.9	-$4.6	-$3.2	-$2.6	-$2.8	-$3.1	-$3.0	-$2.9	-$3.2	-$3.1
Construction	-$0.7	-$1.5	-$1.4	-$0.9	-$0.8	-$0.8	-$0.9	-$0.9	-$0.9	-$0.9	-$0.9
Manufacturing	-$6.0	-$14.0	-$13.5	-$9.1	-$7.4	-$7.9	-$8.8	-$8.6	-$8.1	-$8.9	-$8.8
Wholesale & retail trade	-$15.9	-$32.1	-$29.6	-$21.6	-$18.0	-$18.9	-$20.7	-$20.0	-$19.5	-$21.6	-$20.7
Transportation	-$2.3	-$5.1	-$4.8	-$3.3	-$2.7	-$2.9	-$3.2	-$3.1	-$3.0	-$3.3	-$3.2
Communications & information	-$2.4	-$4.9	-$4.5	-$3.3	-$2.8	-$2.9	-$3.2	-$3.0	-$3.0	-$3.3	-$3.2
Finance & real estate	-$22.7	-$47.9	-$45.0	-$32.2	-$26.5	-$28.0	-$30.7	-$29.8	-$28.8	-$31.8	-$30.8
Services	-$27.5	-$54.9	-$50.6	-$37.2	-$31.1	-$32.7	-$35.7	-$34.4	-$33.7	-$37.3	-$35.8
Govt enterprises	-$1.3	-$2.7	-$2.5	-$1.8	-$1.5	-$1.6	-$1.7	-$1.7	-$1.6	-$1.8	-$1.8
Misc non-industry	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total for all industries	-$82.4	-$191.8	-$183.0	-$123.1	-$99.5	-$107.7	-$119.2	-$116.3	-$110.6	-$121.6	-$120.0

Appendix C
State Employment and Value Added Impacts of Removing the Ethanol Import Tariff by Commodity

Table C.1

State Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Ethanol											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	0	0	-594	-602	-522	0	0	0	-401	-429	-16
California	-277	-685	-1,099	-990	-671	-472	-417	-359	-283	-339	-189
Colorado	-160	-402	-602	-558	-411	-332	-324	-311	-284	-331	-257
Georgia	-145	-360	-552	-504	-361	-278	-264	-244	-211	-244	-174
Idaho	-66	-163	-261	-237	-161	-114	-101	-88	-69	-84	-47
Illinois	-1,827	-4,585	-6,911	-6,292	-4,593	-3,658	-3,535	-3,338	-2,962	-3,394	-2,586
Indiana	-1,021	-2,516	-3,892	-3,595	-2,572	-1,977	-1,873	-1,737	-1,505	-1,760	-1,246
Iowa	-4,198	-10,343	-15,979	-14,881	-10,732	-8,320	-7,931	-7,427	-6,519	-7,646	-5,529
Kansas	-643	-1,610	-2,427	-2,260	-1,661	-1,331	-1,296	-1,240	-1,129	-1,324	-1,015
Kentucky	-40	-99	-152	-141	-103	-80	-77	-73	-65	-76	-56
Louisiana	-10	-11	-13	-6	-4	-3	-3	-3	-3	-3	-2
Michigan	-310	-771	-1,173	-1,098	-802	-636	-616	-586	-530	-625	-470
Minnesota	-1,250	-3,113	-4,729	-4,374	-3,187	-2,519	-2,428	-2,302	-2,057	-2,396	-1,799
Missouri	-365	-918	-1,376	-1,277	-942	-759	-742	-711	-649	-759	-587
Nebraska	-2,327	-5,818	-8,807	-8,215	-6,022	-4,803	-4,666	-4,454	-4,043	-4,753	-3,613
New Mexico	0	0	-284	-283	-250	-223	-211	-203	-34	-42	-20
New York	-169	-417	-670	-603	-407	-284	-250	-215	-168	-203	-111
North Carolina	0	-405	-471	-461	-163	-124	-116	-107	-91	-107	-73
North Dakota	-388	-958	-1,475	-1,380	-999	-779	-746	-703	-626	-739	-540
Ohio	-590	-1,462	-2,239	-2,116	-1,543	-1,216	-1,176	-1,118	-1,008	-1,199	-886
Oregon	-194	-478	-758	-684	-470	-338	-305	-268	-215	-255	-150
Pennsylvania	0	-990	-1,146	-1,122	-356	-275	-261	-242	-210	-243	-174
South Dakota	-1,283	-3,194	-4,871	-4,550	-3,320	-2,626	-2,538	-2,413	-2,179	-2,569	-1,929
Tennessee	-256	-638	-970	-902	-658	-520	-502	-477	-429	-503	-378
Texas	-407	-1,009	-1,566	-1,418	-999	-752	-700	-636	-535	-621	-417
Washington	0	-414	-486	-476	-437	-113	-104	-94	-78	-90	-58
Wisconsin	-621	-1,549	-2,352	-2,196	-1,605	-1,274	-1,234	-1,175	-1,063	-1,251	-943
Wyoming	-6	-15	-23	-21	-15	-12	-12	-11	-10	-11	-8
Total for all states	-16,552	-42,924	-65,877	-61,244	-43,967	-33,818	-32,429	-30,533	-27,355	-31,997	-23,276
State Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Corn											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-5	-29	-46	-38	-28	-24	-25	-26	-24	-23	-25
California	-40	-202	-307	-250	-184	-159	-165	-169	-156	-152	-159
Colorado	-273	-919	-1,244	-939	-701	-566	-591	-592	-554	-563	-576
Georgia	-56	-286	-438	-359	-265	-238	-253	-264	-250	-250	-269
Idaho	-24	-111	-164	-133	-99	-86	-89	-91	-84	-83	-86
Illinois	-3,858	-11,976	-15,417	-12,375	-9,480	-8,829	-9,433	-9,535	-9,156	-9,552	-9,766
Indiana	-1,772	-5,944	-7,972	-6,471	-4,921	-4,540	-4,850	-4,935	-4,738	-4,922	-5,070
Iowa	-4,396	-12,736	-15,716	-12,467	-9,611	-9,022	-9,622	-9,640	-9,245	-9,672	-9,795
Kansas	-843	-2,818	-3,810	-2,885	-2,158	-1,745	-1,822	-1,828	-1,714	-1,742	-1,784
Kentucky	-246	-1,346	-2,094	-1,712	-1,260	-1,125	-1,194	-1,248	-1,179	-1,176	-1,263
Louisiana	-119	-565	-833	-664	-482	-429	-453	-464	-431	-426	-449
Michigan	-464	-2,208	-3,316	-2,667	-2,130	-1,784	-1,884	-1,821	-1,622	-1,355	-1,426
Minnesota	-1,990	-7,313	-10,000	-7,897	-6,331	-5,471	-5,787	-5,573	-5,035	-4,449	-4,581
Missouri	-1,087	-4,189	-6,002	-4,961	-3,756	-3,437	-3,689	-3,805	-3,668	-3,807	-3,976
Nebraska	-2,396	-7,030	-8,835	-6,630	-5,043	-4,254	-4,465	-4,434	-4,180	-4,308	-4,353
New Mexico	-17	-86	-132	-109	-80	-70	-73	-76	-71	-70	-75
New York	-77	-413	-626	-502	-366	-326	-344	-356	-333	-332	-354
North Carolina	-141	-515	-703	-561	-421	-386	-408	-417	-394	-400	-418
North Dakota	-383	-1,805	-2,737	-2,277	-1,723	-1,542	-1,619	-1,680	-1,588	-1,591	-1,676
Ohio	-1,071	-3,984	-5,613	-4,610	-3,482	-3,182	-3,402	-3,492	-3,355	-3,472	-3,610
Oregon	-10	-63	-101	-83	-61	-53	-55	-57	-53	-52	-55
Pennsylvania	-153	-758	-1,125	-897	-654	-584	-615	-631	-589	-587	-622
South Dakota	-742	-2,736	-3,810	-3,099	-2,369	-2,150	-2,257	-2,309	-2,184	-2,210	-2,294
Tennessee	-122	-980	-1,647	-1,367	-995	-876	-929	-984	-929	-916	-1,000
Texas	-326	-2,149	-3,544	-2,959	-2,166	-1,874	-1,952	-2,044	-1,911	-1,866	-1,995
Washington	-28	-165	-262	-216	-159	-138	-143	-149	-139	-136	-144
Wisconsin	-720	-3,425	-5,133	-4,118	-3,283	-2,749	-2,900	-2,799	-2,491	-2,082	-2,186
Wyoming	-7	-47	-77	-64	-48	-41	-43	-45	-42	-41	-44
Total for all states	-21,366	-74,798	-101,705	-81,311	-62,255	-55,680	-59,063	-59,463	-56,117	-56,237	-58,049

Table C.1 (continued)

State Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Soybeans											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	0	0	0	0	0	0	0	0	0	0	0
California	0	0	0	0	0	0	0	0	0	0	0
Colorado	0	0	0	0	0	0	0	0	0	0	0
Georgia	-5	-19	-36	-38	-30	-23	-22	-23	-22	-20	-19
Idaho	0	0	0	0	0	0	0	0	0	0	0
Illinois	56	869	1,524	1,361	921	844	893	979	937	1,001	1,145
Indiana	60	701	1,212	1,071	732	665	704	767	734	780	880
Iowa	15	606	1,098	1,016	669	619	643	709	676	732	856
Kansas	4	95	145	5	-39	-123	-121	-122	-123	-117	-93
Kentucky	-30	-79	-173	-209	-173	-126	-115	-120	-118	-107	-96
Louisiana	-14	-53	-120	-134	-105	-77	-75	-80	-76	-69	-66
Michigan	-23	282	539	428	342	245	256	226	164	43	73
Minnesota	-114	464	981	771	638	423	433	347	199	-109	-33
Missouri	122	1,180	1,999	1,720	1,186	1,067	1,139	1,232	1,176	1,236	1,376
Nebraska	-15	38	56	-136	-172	-305	-308	-311	-304	-290	-250
New Mexico	0	0	0	0	0	0	0	0	0	0	0
New York	-5	22	39	24	11	13	17	19	16	17	23
North Carolina	-25	-93	-166	-164	-128	-100	-98	-101	-97	-91	-85
North Dakota	-71	-304	-561	-539	-426	-332	-326	-341	-325	-311	-300
Ohio	109	961	1,627	1,419	985	883	938	1,012	969	1,019	1,128
Oregon	0	0	0	0	0	0	0	0	0	0	0
Pennsylvania	-12	50	83	48	20	24	30	34	28	28	40
South Dakota	-84	-350	-650	-628	-496	-378	-363	-375	-354	-333	-314
Tennessee	-26	-39	-129	-194	-170	-117	-99	-105	-104	-91	-77
Texas	-3	-9	-25	-29	-23	-17	-15	-16	-15	-13	-12
Washington	0	0	0	0	0	0	0	0	0	0	0
Wisconsin	-20	252	481	381	305	218	227	200	145	36	63
Wyoming	0	0	0	0	0	0	0	0	0	0	0
Total for all states	-81	4,575	7,923	6,173	4,047	3,407	3,737	3,931	3,506	3,339	4,239

State Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Wheat											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-4	-10	-13	-13	-10	-8	-9	-9	-8	-8	-8
California	-15	-36	-46	-41	-32	-28	-29	-28	-27	-27	-27
Colorado	-29	-5	51	53	35	23	22	28	24	19	25
Georgia	-5	-9	-13	-14	-12	-10	-9	-9	-9	-8	-8
Idaho	-45	-113	-145	-132	-103	-90	-93	-93	-90	-91	-90
Illinois	-23	0	39	32	17	13	15	19	16	13	20
Indiana	-14	7	42	39	27	20	20	25	22	19	24
Iowa	-1	-1	0	1	0	0	0	0	0	0	0
Kansas	-151	-20	274	278	185	127	123	156	137	109	146
Kentucky	-10	-15	-30	-42	-36	-27	-24	-24	-25	-22	-21
Louisiana	-5	-17	-28	-28	-22	-18	-18	-19	-19	-18	-18
Michigan	-19	37	120	114	83	65	65	74	69	63	72
Minnesota	-41	33	161	159	115	87	86	101	93	84	99
Missouri	-21	70	164	132	89	76	82	93	84	80	96
Nebraska	-31	-35	-2	7	2	-5	-7	-2	-4	-9	-5
New Mexico	-3	-6	-8	-7	-5	-5	-5	-5	-5	-4	-4
New York	-3	14	31	27	19	16	16	18	16	16	18
North Carolina	-11	-26	-37	-38	-31	-26	-24	-24	-24	-23	-22
North Dakota	-134	-224	-193	-176	-142	-132	-130	-110	-112	-121	-103
Ohio	-33	65	212	206	152	119	118	135	126	117	134
Oregon	-22	-46	-63	-68	-53	-43	-44	-43	-42	-40	-38
Pennsylvania	-5	20	44	34	22	19	21	23	21	20	24
South Dakota	-63	-114	-105	-93	-75	-70	-70	-62	-63	-67	-60
Tennessee	-7	-9	-25	-40	-35	-25	-21	-22	-23	-20	-19
Texas	-45	-50	-59	-79	-50	-37	-39	-40	-42	-25	-25
Washington	-53	-113	-155	-162	-127	-106	-108	-107	-105	-103	-99
Wisconsin	-10	5	34	34	24	18	18	21	19	17	21
Wyoming	-1	0	1	0	0	0	0	0	0	0	0
Total for all states	-803	-599	251	182	37	-48	-45	94	33	-31	132

Table C.1 (continued)

State Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Barley											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-5	-13	-12	-10	-7	-7	-8	-8	-7	-7	-7
California	-5	-12	-14	-9	-6	-7	-7	-7	-6	-7	-7
Colorado	-11	-25	-23	-14	-11	-12	-14	-13	-12	-14	-14
Georgia	0	0	0	0	0	0	0	0	0	0	0
Idaho	-78	-190	-200	-132	-100	-102	-111	-108	-101	-108	-108
Illinois	0	0	0	0	0	0	0	0	0	0	0
Indiana	0	0	0	0	0	0	0	0	0	0	0
Iowa	0	0	0	0	0	0	0	0	0	0	0
Kansas	-1	-2	-2	-1	-1	-1	-1	-1	-1	-1	-1
Kentucky	-1	-2	-3	-2	-1	-1	-1	-1	-1	-1	-1
Louisiana	0	0	0	0	0	0	0	0	0	0	0
Michigan	-1	-2	-1	0	0	0	0	0	0	0	0
Minnesota	-10	-17	-9	-2	-1	-4	-5	-4	-4	-5	-5
Missouri	0	0	0	0	0	0	0	0	0	0	0
Nebraska	0	0	0	0	0	0	0	0	0	0	0
New Mexico	0	0	0	0	0	0	0	0	0	0	0
New York	-1	-1	-1	0	0	0	0	0	0	0	0
North Carolina	-2	-4	-4	-3	-2	-2	-2	-2	-2	-2	-2
North Dakota	-116	-318	-372	-261	-187	-180	-186	-183	-167	-169	-172
Ohio	0	0	0	0	0	0	0	0	0	0	0
Oregon	-4	-13	-15	-10	-7	-7	-8	-8	-7	-7	-7
Pennsylvania	-7	-12	-7	-1	-1	-4	-4	-4	-4	-5	-5
South Dakota	-3	-8	-9	-6	-5	-4	-5	-5	-4	-4	-4
Tennessee	0	0	0	0	0	0	0	0	0	0	0
Texas	0	0	0	0	0	0	0	0	0	0	0
Washington	-17	-49	-56	-36	-26	-26	-29	-29	-26	-27	-28
Wisconsin	-2	-4	-2	1	1	0	-1	0	0	-1	-1
Wyoming	-8	-34	-46	-33	-23	-22	-23	-24	-22	-22	-23
Total for all states	-271	-708	-775	-519	-378	-381	-405	-397	-366	-382	-387

State Employment Impacts (full- & part-time jobs) Due to Removal of the Ethanol Import Tariff By Commodity: Sorghum											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-2	-4	-4	-3	-2	-2	-2	-2	-2	-2	-2
California	-1	-2	-2	-2	-1	-1	-1	-1	-1	-1	-1
Colorado	-4	-9	-6	-3	-2	-3	-3	-3	-3	-3	-3
Georgia	-2	-7	-9	-7	-5	-5	-5	-5	-5	-5	-5
Idaho	0	0	0	0	0	0	0	0	0	0	0
Illinois	-8	-14	-7	-1	-1	-4	-5	-4	-4	-5	-5
Indiana	0	0	0	0	0	0	0	0	0	0	0
Iowa	0	0	0	0	0	0	0	0	0	0	0
Kansas	-211	-421	-306	-150	-125	-163	-184	-167	-153	-178	-167
Kentucky	-1	-7	-9	-7	-5	-5	-5	-5	-5	-5	-5
Louisiana	-15	-68	-90	-68	-50	-49	-54	-55	-51	-52	-56
Michigan	0	0	0	0	0	0	0	0	0	0	0
Minnesota	0	0	0	0	0	0	0	0	0	0	0
Missouri	-11	-15	8	21	17	8	5	7	8	5	5
Nebraska	-20	-39	-29	-15	-12	-15	-17	-15	-14	-16	-15
New Mexico	-3	-12	-14	-10	-8	-7	-7	-7	-7	-7	-7
New York	0	0	0	0	0	0	0	0	0	0	0
North Carolina	-1	-2	-3	-2	-2	-2	-2	-2	-2	-2	-2
North Dakota	0	0	0	0	0	0	0	0	0	0	0
Ohio	0	0	0	0	0	0	0	0	0	0	0
Oregon	0	0	0	0	0	0	0	0	0	0	0
Pennsylvania	0	-1	0	0	0	0	0	0	0	0	0
South Dakota	-9	-37	-52	-43	-32	-30	-31	-32	-29	-29	-30
Tennessee	-2	-10	-13	-10	-7	-7	-8	-8	-7	-7	-8
Texas	-140	-522	-664	-490	-361	-338	-357	-360	-326	-322	-333
Washington	0	0	0	0	0	0	0	0	0	0	0
Wisconsin	0	0	0	0	0	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0	0	0	0	0
Total for all states	-433	-1,169	-1,201	-789	-599	-624	-677	-662	-603	-631	-634

Table C.2

State Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Ethanol											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	$0.0	$0.0	-$257.6	-$268.2	-$238.8	$0.0	$0.0	$0.0	-$203.2	-$222.6	-$8.3
California	-$112.8	-$292.7	-$474.1	-$419.7	-$289.2	-$210.1	-$190.3	-$166.3	-$132.8	-$155.9	-$92.7
Colorado	-$53.1	-$142.3	-$207.1	-$189.6	-$148.3	-$130.1	-$134.2	-$134.8	-$130.1	-$150.7	-$130.8
Georgia	-$49.6	-$130.5	-$197.6	-$176.9	-$132.5	-$109.9	-$109.4	-$105.4	-$95.2	-$108.3	-$87.1
Idaho	-$20.0	-$51.9	-$83.5	-$73.7	-$51.0	-$37.4	-$34.2	-$30.1	-$24.2	-$28.2	-$17.2
Illinois	-$636.3	-$1,690.1	-$2,518.7	-$2,275.8	-$1,746.9	-$1,494.6	-$1,516.7	-$1,492.3	-$1,385.6	-$1,577.8	-$1,331.1
Indiana	-$325.5	-$857.7	-$1,296.8	-$1,170.6	-$882.7	-$738.6	-$740.1	-$717.7	-$654.1	-$747.0	-$607.3
Iowa	-$1,212.6	-$3,206.6	-$4,800.0	-$4,369.0	-$3,349.8	-$2,850.9	-$2,885.4	-$2,839.0	-$2,636.0	-$3,018.7	-$2,524.1
Kansas	-$197.2	-$530.1	-$766.4	-$700.3	-$550.3	-$486.3	-$503.5	-$507.1	-$491.3	-$567.9	-$497.0
Kentucky	-$12.4	-$32.8	-$48.5	-$44.3	-$34.2	-$29.5	-$30.0	-$29.9	-$28.2	-$32.5	-$27.6
Louisiana	-$4.6	-$5.5	-$6.5	-$1.9	-$1.4	-$1.3	-$1.3	-$1.3	-$1.2	-$1.4	-$1.2
Michigan	-$101.5	-$272.0	-$396.0	-$363.8	-$284.7	-$249.9	-$257.9	-$259.2	-$250.3	-$290.6	-$251.9
Minnesota	-$397.6	-$1,055.8	-$1,567.2	-$1,433.0	-$1,106.1	-$950.5	-$967.9	-$962.6	-$907.8	-$1,046.3	-$886.3
Missouri	-$108.7	-$291.3	-$423.4	-$388.9	-$304.7	-$267.9	-$276.8	-$278.4	-$269.1	-$312.2	-$271.1
Nebraska	-$671.0	-$1,802.3	-$2,616.0	-$2,394.1	-$1,876.9	-$1,652.9	-$1,708.1	-$1,718.2	-$1,661.6	-$1,923.9	-$1,676.3
New Mexico	$0.0	$0.0	-$123.3	-$125.9	-$114.1	-$104.4	-$101.4	-$100.1	-$11.9	-$14.5	-$6.8
New York	-$71.7	-$186.5	-$303.0	-$267.9	-$183.7	-$132.5	-$119.3	-$103.9	-$82.4	-$96.9	-$56.8
North Carolina	$0.0	-$206.4	-$245.7	-$246.6	-$57.9	-$47.5	-$47.0	-$45.0	-$40.2	-$45.9	-$36.2
North Dakota	-$113.0	-$301.5	-$444.3	-$405.3	-$314.4	-$272.4	-$278.7	-$278.1	-$264.3	-$304.7	-$261.0
Ohio	-$186.6	-$501.9	-$726.0	-$671.4	-$528.8	-$468.3	-$486.6	-$491.8	-$477.9	-$556.3	-$485.2
Oregon	-$62.1	-$161.9	-$257.6	-$227.1	-$159.7	-$120.3	-$111.8	-$100.4	-$82.4	-$94.8	-$61.3
Pennsylvania	$0.0	-$474.3	-$563.3	-$565.9	-$131.6	-$109.4	-$109.1	-$105.3	-$95.3	-$108.7	-$87.5
South Dakota	-$357.6	-$955.8	-$1,402.2	-$1,286.0	-$1,001.1	-$871.6	-$895.1	-$896.1	-$861.2	-$1,000.3	-$860.5
Tennessee	-$80.7	-$214.0	-$317.0	-$291.0	-$224.8	-$193.4	-$197.2	-$196.3	-$186.4	-$216.1	-$183.2
Texas	-$155.9	-$409.3	-$629.7	-$556.2	-$406.4	-$325.6	-$316.3	-$297.1	-$259.0	-$293.0	-$221.3
Washington	$0.0	-$206.8	-$248.9	-$249.5	-$234.5	-$46.1	-$44.1	-$40.9	-$34.9	-$39.6	-$28.5
Wisconsin	-$179.2	-$479.1	-$701.6	-$645.0	-$502.9	-$438.8	-$451.3	-$452.4	-$435.5	-$506.3	-$435.9
Wyoming	-$2.1	-$5.6	-$8.2	-$7.5	-$5.8	-$5.0	-$5.1	-$5.1	-$4.8	-$5.5	-$4.7
Total for all states	-$5,111.6	-$14,464.9	-$21,630.4	-$19,815.1	-$14,863.3	-$12,345.3	-$12,518.8	-$12,354.7	-$11,706.9	-$13,466.8	-$11,139.1

State Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Corn											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-$1.1	-$4.6	-$6.6	-$5.4	-$4.0	-$3.6	-$3.8	-$3.9	-$3.7	-$3.7	-$3.8
California	-$9.9	-$37.2	-$51.1	-$41.1	-$31.2	-$28.1	-$29.4	-$29.8	-$27.9	-$28.1	-$28.8
Colorado	-$54.3	-$164.3	-$210.3	-$159.6	-$123.1	-$105.8	-$112.7	-$113.1	-$108.3	-$113.8	-$116.0
Georgia	-$11.6	-$37.5	-$48.6	-$38.7	-$29.9	-$28.3	-$30.5	-$31.2	-$30.0	-$31.3	-$32.6
Idaho	-$3.9	-$16.6	-$24.0	-$19.5	-$14.8	-$13.2	-$13.8	-$14.2	-$13.3	-$13.4	-$13.9
Illinois	-$809.0	-$2,384.1	-$2,976.3	-$2,392.3	-$1,878.6	-$1,799.2	-$1,950.6	-$1,978.0	-$1,927.1	-$2,054.3	-$2,099.8
Indiana	-$301.6	-$939.6	-$1,211.8	-$982.4	-$765.2	-$725.8	-$785.4	-$799.9	-$778.0	-$824.8	-$847.3
Iowa	-$728.9	-$2,259.8	-$2,907.9	-$2,355.5	-$1,837.4	-$1,746.6	-$1,893.4	-$1,930.2	-$1,880.2	-$1,997.6	-$2,053.9
Kansas	-$144.6	-$474.0	-$634.7	-$485.6	-$370.9	-$310.5	-$330.1	-$334.1	-$318.9	-$332.2	-$341.8
Kentucky	-$44.2	-$149.2	-$196.9	-$157.3	-$121.0	-$114.2	-$123.1	-$126.2	-$121.5	-$126.5	-$132.1
Louisiana	-$21.3	-$77.6	-$104.5	-$82.8	-$62.1	-$57.5	-$61.4	-$62.3	-$58.9	-$60.1	-$62.4
Michigan	-$85.0	-$295.9	-$396.0	-$314.9	-$256.6	-$228.2	-$244.5	-$237.9	-$219.5	-$203.4	-$209.4
Minnesota	-$388.1	-$1,328.5	-$1,764.4	-$1,401.0	-$1,143.3	-$1,023.7	-$1,101.0	-$1,074.1	-$995.9	-$932.0	-$960.5
Missouri	-$167.6	-$505.2	-$640.4	-$518.4	-$408.2	-$391.1	-$425.1	-$432.9	-$422.9	-$452.0	-$464.0
Nebraska	-$402.5	-$1,296.8	-$1,723.5	-$1,319.8	-$1,012.7	-$856.0	-$914.0	-$927.1	-$888.5	-$929.9	-$958.3
New Mexico	-$3.0	-$12.2	-$17.6	-$14.5	-$10.9	-$9.9	-$10.5	-$10.8	-$10.3	-$10.4	-$11.0
New York	-$19.8	-$63.7	-$80.7	-$63.1	-$48.3	-$45.6	-$48.7	-$49.1	-$46.8	-$48.6	-$50.1
North Carolina	-$26.2	-$85.9	-$111.9	-$89.2	-$69.0	-$65.3	-$70.4	-$72.0	-$69.4	-$72.4	-$75.4
North Dakota	-$59.1	-$288.0	-$442.2	-$371.6	-$284.5	-$258.3	-$274.3	-$286.9	-$274.3	-$278.7	-$295.0
Ohio	-$164.2	-$498.1	-$632.9	-$511.0	-$399.6	-$380.3	-$411.4	-$417.8	-$406.3	-$431.5	-$442.0
Oregon	-$1.9	-$7.0	-$9.5	-$7.7	-$5.8	-$5.3	-$5.6	-$5.7	-$5.3	-$5.4	-$5.5
Pennsylvania	-$32.9	-$106.2	-$134.9	-$105.4	-$80.6	-$75.9	-$80.9	-$81.5	-$77.5	-$80.4	-$82.6
South Dakota	-$120.5	-$454.7	-$640.4	-$526.7	-$408.9	-$377.7	-$402.4	-$415.6	-$398.5	-$410.4	-$428.7
Tennessee	-$26.4	-$79.5	-$99.1	-$78.0	-$60.4	-$57.3	-$61.5	-$62.2	-$59.6	-$61.9	-$63.8
Texas	-$73.5	-$272.6	-$380.3	-$308.4	-$234.5	-$213.3	-$225.1	-$230.5	-$218.2	-$220.5	-$229.1
Washington	-$6.0	-$22.9	-$31.7	-$25.5	-$19.5	-$17.7	-$18.6	-$19.0	-$18.0	-$18.2	-$18.8
Wisconsin	-$121.4	-$423.0	-$566.0	-$449.3	-$365.5	-$324.8	-$347.8	-$338.1	-$311.7	-$288.6	-$296.9
Wyoming	-$1.3	-$6.0	-$9.0	-$7.5	-$5.7	-$5.1	-$5.3	-$5.5	-$5.2	-$5.3	-$5.5
Total for all states	-$3,829.7	-$12,290.4	-$16,053.2	-$12,832.0	-$10,052.2	-$9,268.0	-$9,981.5	-$10,089.5	-$9,695.6	-$10,035.4	-$10,329.0

Table C.2 (continued)

State Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Soybeans											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
California	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Colorado	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Georgia	-$1.0	-$4.4	-$7.6	-$7.3	-$5.6	-$4.6	-$4.8	-$5.0	-$4.9	-$4.8	-$4.8
Idaho	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Illinois	$15.4	$208.9	$358.4	$314.5	$208.4	$188.1	$194.8	$210.3	$197.2	$208.6	$238.7
Indiana	$11.3	$127.8	$218.0	$190.7	$128.0	$115.0	$119.6	$128.9	$121.4	$128.1	$145.1
Iowa	$27.4	$269.3	$456.0	$399.0	$270.9	$242.4	$253.2	$272.1	$257.5	$270.8	$303.7
Kansas	$2.9	$29.7	$44.0	$10.3	-$2.7	-$22.9	-$23.3	-$24.5	-$26.0	-$25.9	-$21.7
Kentucky	-$4.9	-$18.5	-$33.8	-$34.4	-$27.6	-$21.9	-$22.2	-$23.4	-$23.0	-$22.2	-$21.5
Louisiana	-$2.4	-$9.9	-$21.2	-$22.8	-$17.9	-$13.7	-$14.0	-$15.1	-$14.6	-$13.7	-$13.5
Michigan	-$5.2	$25.4	$51.8	$40.0	$32.5	$20.9	$20.7	$15.6	$7.3	-$9.6	-$6.3
Minnesota	-$21.8	$106.8	$217.7	$168.4	$137.0	$88.5	$88.0	$66.3	$31.4	-$40.2	-$26.2
Missouri	$4.2	$80.4	$139.5	$121.2	$78.8	$71.3	$73.5	$79.6	$73.8	$78.4	$91.2
Nebraska	$9.6	$77.9	$117.6	$40.0	$7.3	-$41.8	-$41.7	-$43.4	-$46.5	-$45.7	-$35.8
New Mexico	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
New York	-$1.1	$0.4	$0.8	-$0.4	-$1.3	-$0.8	-$0.7	-$0.7	-$1.0	-$1.1	-$0.5
North Carolina	-$4.6	-$17.9	-$32.4	-$32.5	-$25.8	-$20.7	-$21.1	-$22.3	-$21.8	-$21.1	-$20.6
North Dakota	-$11.1	-$46.4	-$94.2	-$97.8	-$80.1	-$62.6	-$61.9	-$66.4	-$64.8	-$63.4	-$62.0
Ohio	$7.8	$88.5	$151.2	$132.9	$88.9	$79.7	$82.6	$88.8	$83.5	$88.1	$99.8
Oregon	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Pennsylvania	-$2.2	$1.4	$2.6	-$0.2	-$2.2	-$1.2	-$1.0	-$0.9	-$1.5	-$1.5	-$0.4
South Dakota	-$13.9	-$56.2	-$114.8	-$119.2	-$97.4	-$74.6	-$72.2	-$76.5	-$74.0	-$71.0	-$68.2
Tennessee	-$4.7	-$18.8	-$32.7	-$31.5	-$24.8	-$20.1	-$20.7	-$21.8	-$21.2	-$20.5	-$20.1
Texas	-$0.6	-$2.3	-$4.7	-$4.9	-$3.9	-$2.9	-$2.8	-$3.0	-$2.9	-$2.7	-$2.6
Washington	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Wisconsin	-$4.3	$21.2	$43.0	$33.1	$26.8	$17.3	$17.1	$12.8	$5.9	-$8.0	-$5.4
Wyoming	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total for all states	$0.7	$863.4	$1,459.1	$1,099.2	$689.2	$535.5	$563.2	$571.2	$476.0	$422.5	$569.0

State Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Wheat											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-$0.9	-$2.3	-$3.0	-$2.7	-$2.1	-$1.9	-$2.0	-$2.1	-$2.0	-$2.1	-$2.2
California	-$3.5	-$9.7	-$12.3	-$10.5	-$8.3	-$7.7	-$8.1	-$8.3	-$8.1	-$8.5	-$8.7
Colorado	-$6.0	-$6.5	-$0.2	$1.3	$0.0	-$1.6	-$2.4	-$1.9	-$2.4	-$3.8	-$3.3
Georgia	-$0.9	-$2.4	-$3.1	-$2.8	-$2.3	-$2.0	-$2.1	-$2.1	-$2.1	-$2.2	-$2.2
Idaho	-$7.2	-$19.1	-$24.8	-$22.5	-$18.0	-$16.4	-$17.5	-$18.0	-$17.8	-$18.5	-$19.0
Illinois	-$5.0	-$3.5	$1.9	$1.5	-$0.3	-$1.2	-$1.4	-$0.8	-$1.5	-$2.6	-$1.8
Indiana	-$2.5	-$1.1	$3.0	$3.0	$1.6	$0.7	$0.5	$0.9	$0.5	-$0.2	$0.3
Iowa	-$0.1	-$0.1	$0.1	$0.2	$0.1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Kansas	-$26.1	-$12.6	$29.6	$31.8	$18.7	$9.0	$6.4	$10.3	$6.7	-$0.1	$3.9
Kentucky	-$1.6	-$3.9	-$5.6	-$5.7	-$4.7	-$4.0	-$4.0	-$4.1	-$4.0	-$4.1	-$4.1
Louisiana	-$0.9	-$2.8	-$4.3	-$4.1	-$3.3	-$2.9	-$3.0	-$3.1	-$3.1	-$3.1	-$3.3
Michigan	-$3.5	-$1.8	$4.5	$5.1	$3.3	$1.6	$1.1	$1.6	$1.1	$0.0	$0.5
Minnesota	-$8.0	$0.3	$19.2	$20.0	$13.9	$9.4	$8.7	$10.7	$9.5	$7.3	$9.3
Missouri	-$3.7	-$0.7	$5.0	$4.1	$1.9	$0.9	$0.9	$1.5	$0.9	-$0.1	$0.8
Nebraska	-$5.1	-$3.6	$3.6	$4.5	$2.5	$0.8	$0.2	$0.9	$0.3	-$1.0	-$0.4
New Mexico	-$0.6	-$1.3	-$1.6	-$1.5	-$1.1	-$1.0	-$1.1	-$1.2	-$1.2	-$1.2	-$1.2
New York	-$0.6	$0.2	$1.4	$1.3	$0.8	$0.5	$0.5	$0.6	$0.4	$0.3	$0.4
North Carolina	-$2.1	-$5.2	-$7.3	-$7.0	-$5.8	-$5.0	-$5.0	-$5.1	-$5.1	-$5.1	-$5.2
North Dakota	-$20.6	-$35.3	-$32.0	-$30.5	-$25.6	-$25.0	-$25.8	-$23.7	-$24.8	-$27.6	-$25.9
Ohio	-$5.7	-$3.2	$7.2	$8.6	$5.7	$2.9	$2.1	$3.0	$2.2	$0.5	$1.3
Oregon	-$4.1	-$10.6	-$13.7	-$12.2	-$9.6	-$8.7	-$9.1	-$9.3	-$9.0	-$9.3	-$9.4
Pennsylvania	-$1.0	-$0.1	$1.4	$1.1	$0.4	$0.2	$0.2	$0.3	$0.1	-$0.2	$0.0
South Dakota	-$10.2	-$19.2	-$18.7	-$17.2	-$14.3	-$13.9	-$14.6	-$13.8	-$14.3	-$15.8	-$15.3
Tennessee	-$1.3	-$3.4	-$4.7	-$4.4	-$3.6	-$3.2	-$3.2	-$3.3	-$3.2	-$3.3	-$3.3
Texas	-$9.5	-$21.4	-$26.2	-$23.8	-$17.8	-$16.4	-$17.7	-$18.2	-$18.1	-$17.6	-$18.3
Washington	-$11.0	-$29.0	-$37.7	-$34.0	-$27.0	-$24.6	-$26.2	-$26.8	-$26.4	-$27.5	-$28.1
Wisconsin	-$1.7	-$2.2	-$0.4	$0.2	-$0.1	-$0.6	-$0.9	-$0.7	-$0.9	-$1.3	-$1.2
Wyoming	-$0.2	-$0.3	-$0.3	-$0.3	-$0.2	-$0.2	-$0.3	-$0.2	-$0.2	-$0.3	-$0.3
Total for all states	-$143.7	-$200.7	-$118.7	-$96.5	-$95.3	-$110.3	-$123.7	-$112.8	-$122.5	-$147.5	-$136.7

Table C.2 (continued)

State Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Barley											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-$1.0	-$2.4	-$2.2	-$1.7	-$1.3	-$1.4	-$1.5	-$1.5	-$1.5	-$1.6	-$1.6
California	-$1.1	-$2.6	-$2.7	-$1.8	-$1.4	-$1.5	-$1.6	-$1.6	-$1.5	-$1.7	-$1.7
Colorado	-$2.4	-$5.1	-$4.7	-$3.0	-$2.5	-$2.8	-$3.1	-$3.1	-$3.1	-$3.5	-$3.5
Georgia	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Idaho	-$12.5	-$29.8	-$31.1	-$21.2	-$16.7	-$17.4	-$19.2	-$19.1	-$18.4	-$20.2	-$20.5
Illinois	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Indiana	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Iowa	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Kansas	-$0.2	-$0.3	-$0.3	-$0.2	-$0.1	-$0.2	-$0.2	-$0.2	-$0.1	-$0.2	-$0.2
Kentucky	-$0.1	-$0.3	-$0.3	-$0.2	-$0.2	-$0.2	-$0.2	-$0.2	-$0.2	-$0.2	-$0.2
Louisiana	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Michigan	-$0.2	-$0.3	-$0.2	-$0.1	-$0.1	-$0.1	-$0.2	-$0.1	-$0.1	-$0.2	-$0.2
Minnesota	-$1.9	-$3.4	-$2.2	-$0.9	-$0.7	-$1.2	-$1.5	-$1.3	-$1.3	-$1.7	-$1.7
Missouri	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Nebraska	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
New Mexico	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
New York	-$0.2	-$0.4	-$0.3	-$0.2	-$0.1	-$0.2	-$0.2	-$0.2	-$0.2	-$0.2	-$0.2
North Carolina	-$0.3	-$0.7	-$0.7	-$0.4	-$0.3	-$0.4	-$0.4	-$0.4	-$0.4	-$0.4	-$0.4
North Dakota	-$17.9	-$50.6	-$60.2	-$42.8	-$31.3	-$30.7	-$32.1	-$32.0	-$29.6	-$30.5	-$31.2
Ohio	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Oregon	-$0.8	-$1.9	-$1.9	-$1.3	-$1.0	-$1.0	-$1.1	-$1.1	-$1.1	-$1.2	-$1.2
Pennsylvania	-$1.4	-$2.5	-$2.0	-$1.2	-$1.1	-$1.4	-$1.6	-$1.5	-$1.6	-$1.9	-$1.9
South Dakota	-$0.4	-$1.3	-$1.5	-$1.1	-$0.8	-$0.8	-$0.8	-$0.8	-$0.8	-$0.8	-$0.8
Tennessee	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Texas	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Washington	-$3.6	-$8.3	-$8.6	-$5.8	-$4.6	-$4.8	-$5.3	-$5.2	-$5.0	-$5.5	-$5.5
Wisconsin	-$0.4	-$0.7	-$0.5	-$0.2	-$0.2	-$0.3	-$0.3	-$0.3	-$0.3	-$0.4	-$0.4
Wyoming	-$1.5	-$4.6	-$5.7	-$4.1	-$3.0	-$3.0	-$3.2	-$3.2	-$3.0	-$3.1	-$3.2
Total for all states	-$46.0	-$115.3	-$125.0	-$86.2	-$65.6	-$67.2	-$72.6	-$71.9	-$68.2	-$73.2	-$74.3

State Value Added Impacts Due to Removal of the Ethanol Import Tariff By Commodity (millions of current dollars): Sorghum											
State	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Arizona	-$0.4	-$0.9	-$0.8	-$0.6	-$0.5	-$0.5	-$0.6	-$0.5	-$0.5	-$0.6	-$0.6
California	-$0.3	-$0.6	-$0.5	-$0.4	-$0.4	-$0.4	-$0.4	-$0.4	-$0.4	-$0.5	-$0.5
Colorado	-$0.9	-$1.8	-$1.4	-$0.8	-$0.7	-$0.8	-$0.9	-$0.9	-$0.8	-$0.9	-$0.9
Georgia	-$0.5	-$1.1	-$1.2	-$0.9	-$0.8	-$0.8	-$0.8	-$0.8	-$0.8	-$0.9	-$0.9
Idaho	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Illinois	-$1.7	-$3.2	-$2.0	-$0.9	-$0.9	-$1.3	-$1.6	-$1.5	-$1.5	-$1.9	-$1.9
Indiana	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Iowa	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Kansas	-$36.7	-$74.7	-$57.5	-$31.6	-$27.4	-$34.6	-$39.6	-$37.6	-$36.0	-$42.3	-$40.7
Kentucky	-$0.3	-$0.8	-$0.9	-$0.7	-$0.5	-$0.5	-$0.6	-$0.6	-$0.6	-$0.6	-$0.6
Louisiana	-$2.8	-$9.3	-$11.5	-$8.8	-$6.7	-$6.8	-$7.6	-$7.8	-$7.4	-$7.8	-$8.2
Michigan	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Minnesota	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Missouri	-$2.1	-$3.6	-$1.6	-$0.1	-$0.2	-$1.0	-$1.4	-$1.2	-$1.2	-$1.7	-$1.6
Nebraska	-$3.3	-$6.7	-$4.9	-$2.4	-$2.0	-$2.8	-$3.2	-$3.0	-$2.8	-$3.3	-$3.1
New Mexico	-$0.6	-$1.7	-$2.0	-$1.5	-$1.2	-$1.1	-$1.2	-$1.2	-$1.1	-$1.1	-$1.1
New York	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
North Carolina	-$0.1	-$0.4	-$0.5	-$0.4	-$0.3	-$0.3	-$0.3	-$0.3	-$0.3	-$0.3	-$0.3
North Dakota	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Ohio	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Oregon	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Pennsylvania	-$0.1	-$0.1	-$0.1	-$0.1	-$0.1	-$0.1	-$0.1	-$0.1	-$0.1	-$0.1	-$0.1
South Dakota	-$1.5	-$6.1	-$8.7	-$7.2	-$5.5	-$5.2	-$5.5	-$5.7	-$5.3	-$5.3	-$5.5
Tennessee	-$0.4	-$0.9	-$1.0	-$0.8	-$0.6	-$0.6	-$0.7	-$0.7	-$0.7	-$0.7	-$0.7
Texas	-$30.7	-$79.7	-$88.2	-$65.8	-$51.7	-$50.8	-$54.6	-$54.1	-$51.0	-$53.5	-$53.2
Washington	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Wisconsin	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Wyoming	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total for all states	-$82.4	-$191.8	-$183.0	-$123.1	-$99.5	-$107.7	-$119.2	-$116.3	-$110.6	-$121.6	-$120.0